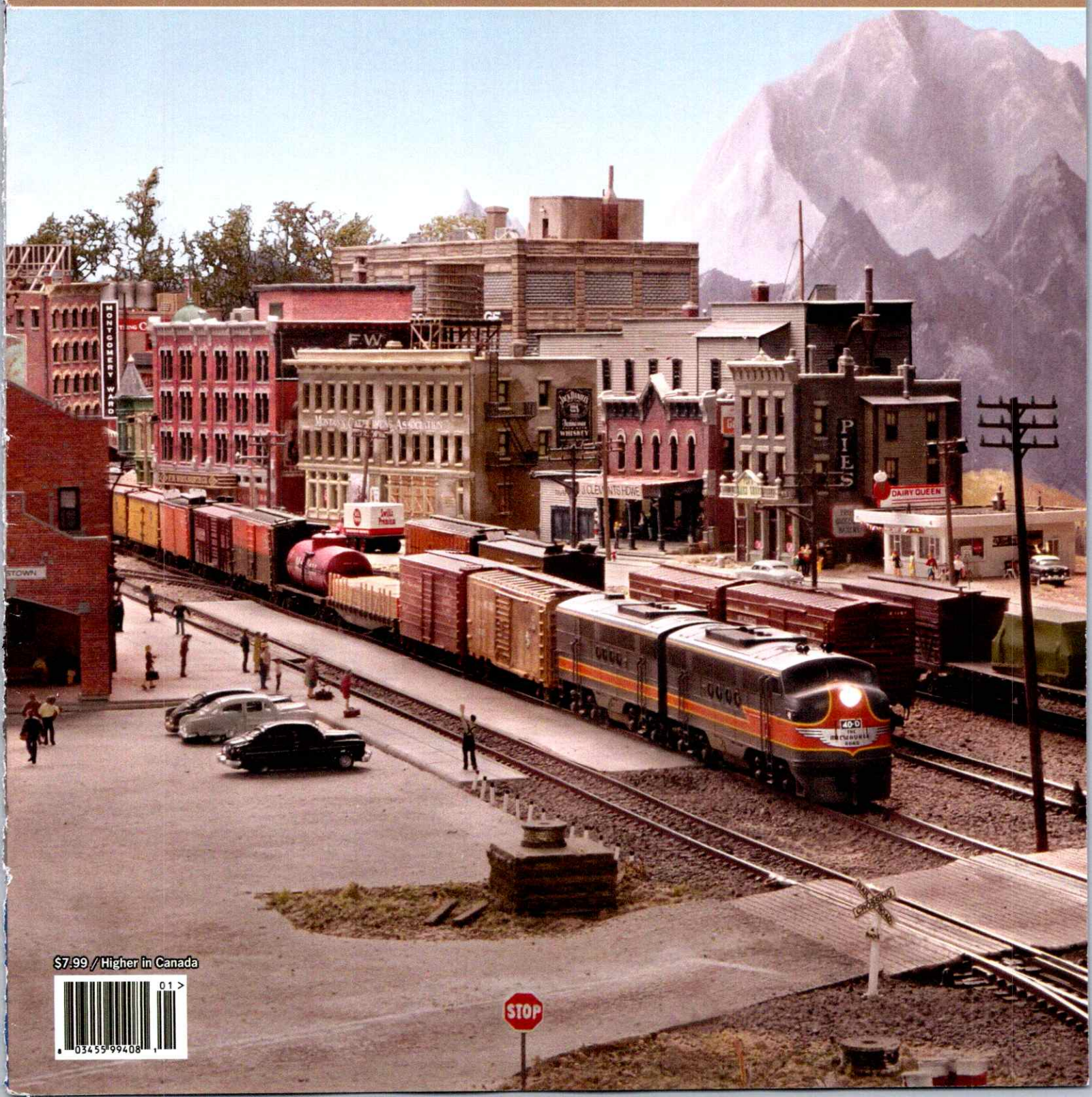
N Scale

NOVEMBER/DECEMBER 2022



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PRODUCT ANNOUNCEMENT

8-55-8 53' CONTAINERS WITH SCHEME SPECIFIC DETAILS AND DECORATING. DUE 4Q 2022

537098 HUB GROUP NHHU SET #3 [7731 Green]

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CSX 'Boxcar' scheme 537095 SET #3

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Volume 34 Number 6
November/December 2022

N-Scale

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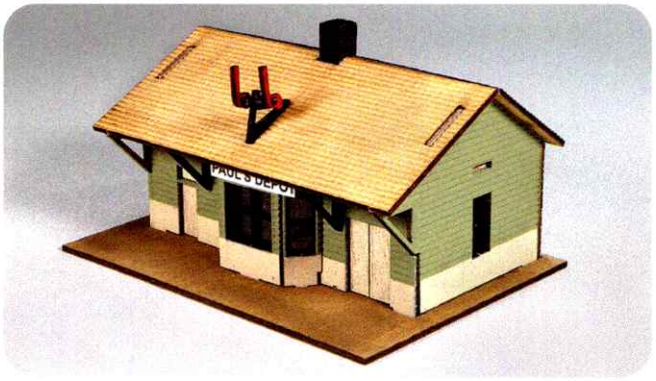

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On the cover: Time Freight 163 eases into Lewistown Yard, observing the eight mph speed restriction. The FTs with their lightning stripe paint scheme are still functioning, but they are gradually being replaced by F7s. You can find this and more in Dan Lewis' Lewistown Series, starting on page 16.

Want to know more? Wonder what's coming up?
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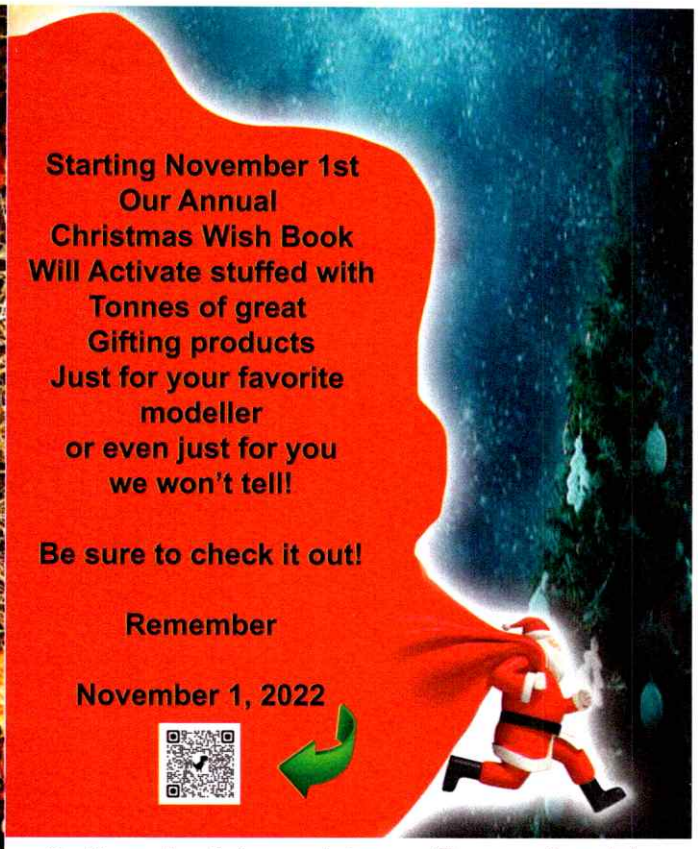

On November 1st our catalogue will appear & update every week with new items for you. Scan or visit https://pwrs.ca/announcements/view.php?ID=20259

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EDITORIAL

We are pleased to bring you another spectacular issue we have worked very hard on, featuring a number of excellent layouts, DCC and Sound, Detailing, "How-To," New Products and more. It is hard to believe that fall is now upon us and the November/December 2022 issue is complete. I hope you enjoy it as much as we did when preparing it for all of you.

2023 will bring many new articles, layouts, "How-To," and more, including a new series by Dan Lewis, *Along The Lines*. I asked Dan Lewis if he would consider doing another series, and thankfully, he said yes. Dan has so much to offer, I wanted to see more, and after he sent his 6-part series proposal, I knew you would want to see more as well. This new series, *Along The Lines*, aims at providing the modeler with an approach to N scale operations. It will again feature six articles: 1. Track, Configurations, 2. Switching, 3. Tools and Techniques, 4. Freight and Passenger Trains, 5. Yards and 6. Maintenance.

Along The Lines, Part 1 (January/February 2023), will explore the challenge of configuring tracks in order to maximize opportunities for operations. Using the prototype as the "go to" resource, it will point out what to do, as well as what to avoid. In arranging track on a layout, it is important to consider the practices of the prototype, the visual importance of a pleasing arrangement, and the functional aspect of what will work and what might be problematic for a model railroad. It will also address liftouts, sidings, run-arounds, curvatures, and easements. We look forward to sharing the new series with you.

And, there is more good news. United North West Model Railroad Club is pleased to announce the return of the 30th Train Show and Marketplace to the Evergreen State Fairgrounds in Monroe, Washington on February 25th and 26th, 2023. If you have not been to this show, you will want to do so. The show grows each year, bringing in new vendors. There will be two large buildings that will include vendor tables and layouts, and a separate building that will host clinics, focus on museums and historical societies and swap tables. I hope you will join us. Walt and I will be there and would love to see you. Check out your local area for train shows. They are so much fun to attend and find new items to add to your layout or future layout, meet new friends, view the layouts, learn new tips and techniques at the clinics and so much more.

Also, please be sure and support your hobby shops. We have unfortunately lost some these last few months that were not able to keep their doors open. Let's take special care of the ones we have left and let them know we are here to support them. If there is not a hobby shop near you, let us know and we can get a subscription set up and have the magazine shipped directly to you. They come in a sealed, plastic bag for protection.

Our manufacturers are also working very hard, bringing us many new products. Be sure and check out the *New Products Showcase* beginning on page 10, featuring just some of the new products now available. I hope you will also support our advertisers. Let them know you appreciate their efforts and that you saw their ad in *N-Scale Magazine*.

A Note from Walt: I am still making progress toward walking once again. I am currently in PT learning how to stand, a requirement before I can begin to relearn how to walk. It is expected that I will be standing in about 1-2 months from now. That sounds like a long time, but recovery is slow, and repetition is essential. I continue to work on scenery and structures, including adding lights to the structures and power poles along the streets and up the hillsides. I have a couple of assistants, Greg and Stephen, helping me with the lighting process, otherwise I would be dead in the water. Progress is being made.

Thank you for your support. We couldn't do this without all of you. Blessed and honored to be your publisher.

Pamela Clapp

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N-Scale Magazine
(ISSN 1045-5140, USPS#004-928-N SCALE)
is published bi-monthly (6 times per year) by:
Platinum Rail Publications
5811 75th Avenue NE
Marysville, WA 98270

Periodicals postage paid at Marysville, WA and additional mailing offices.

POSTMASTER: Send address changes to:
N-Scale Magazine
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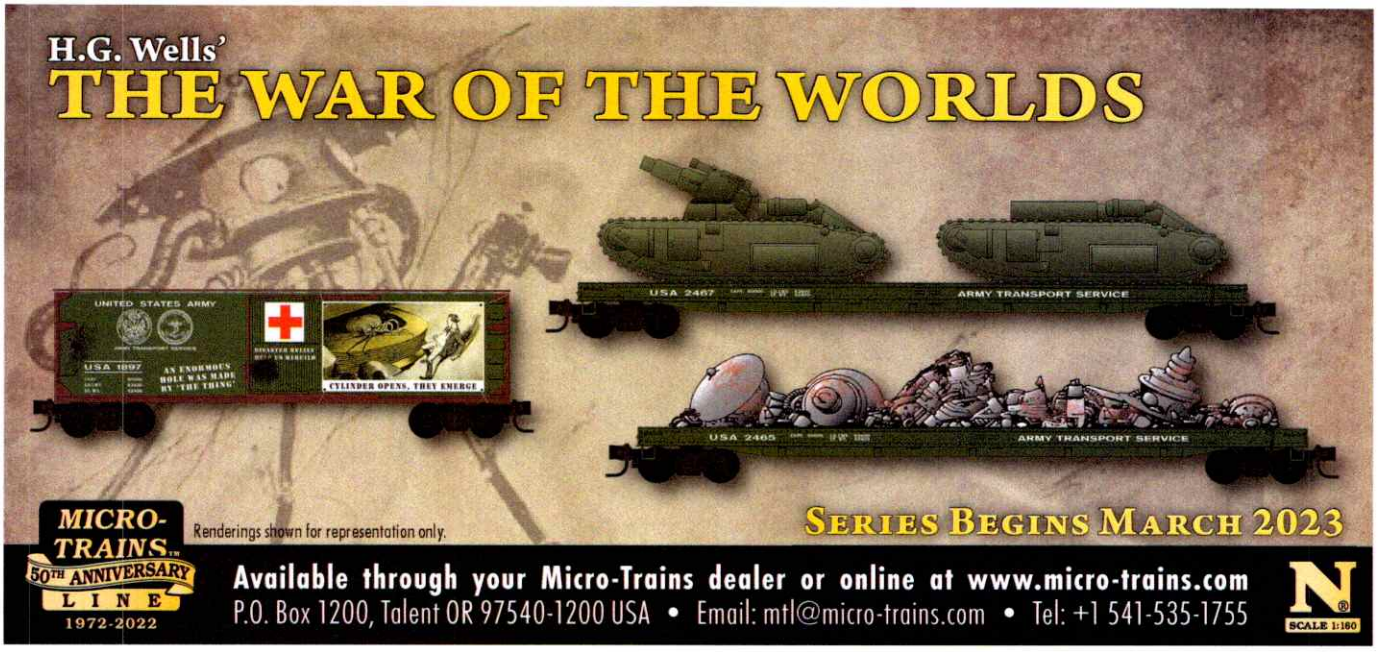
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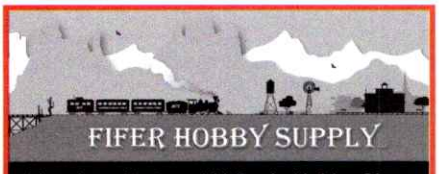
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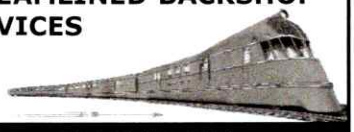

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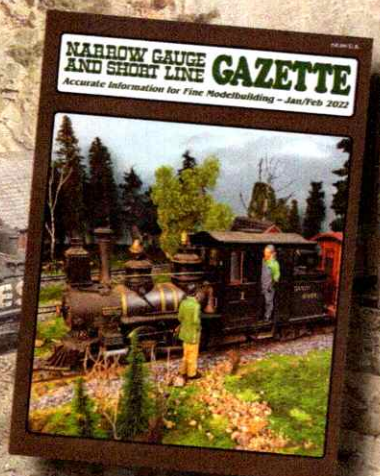

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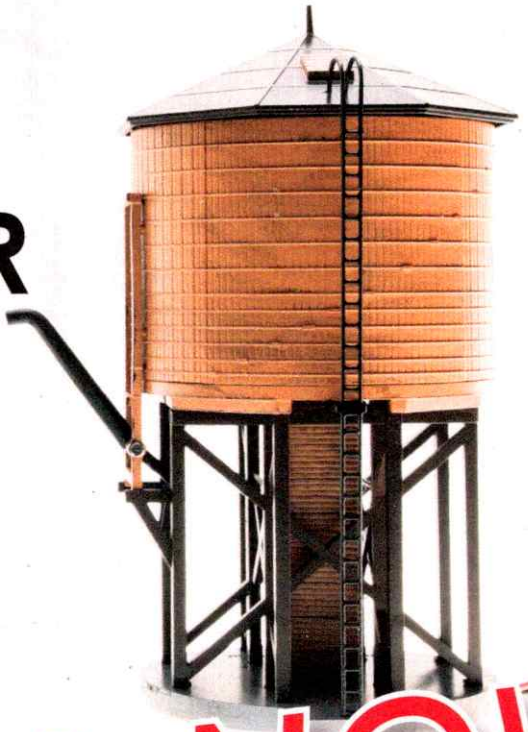

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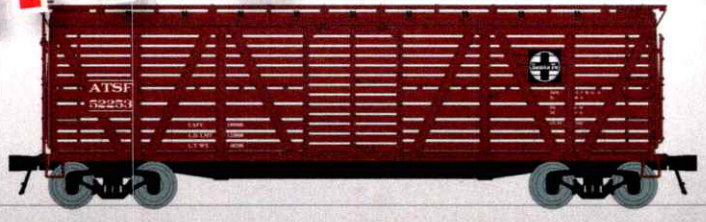

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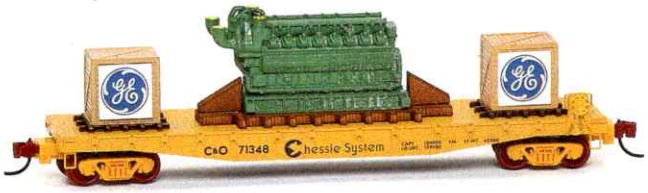

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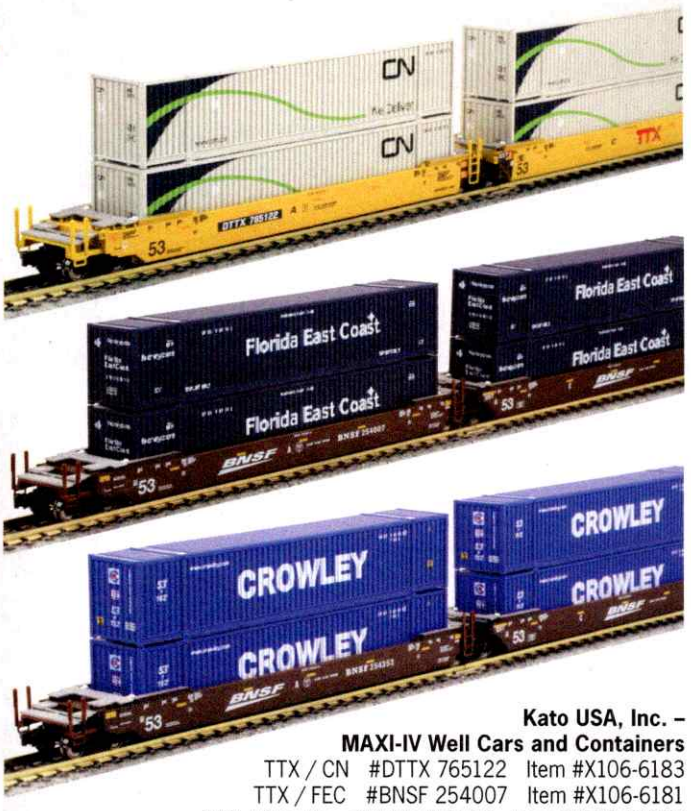

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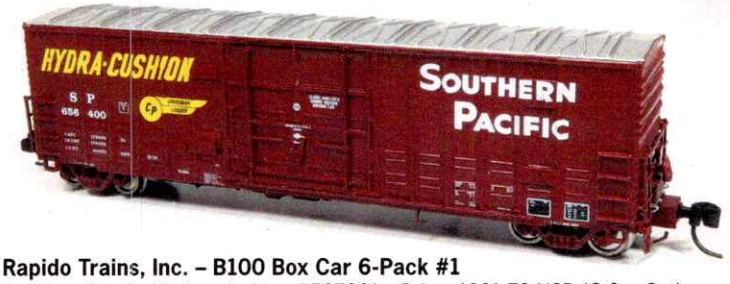

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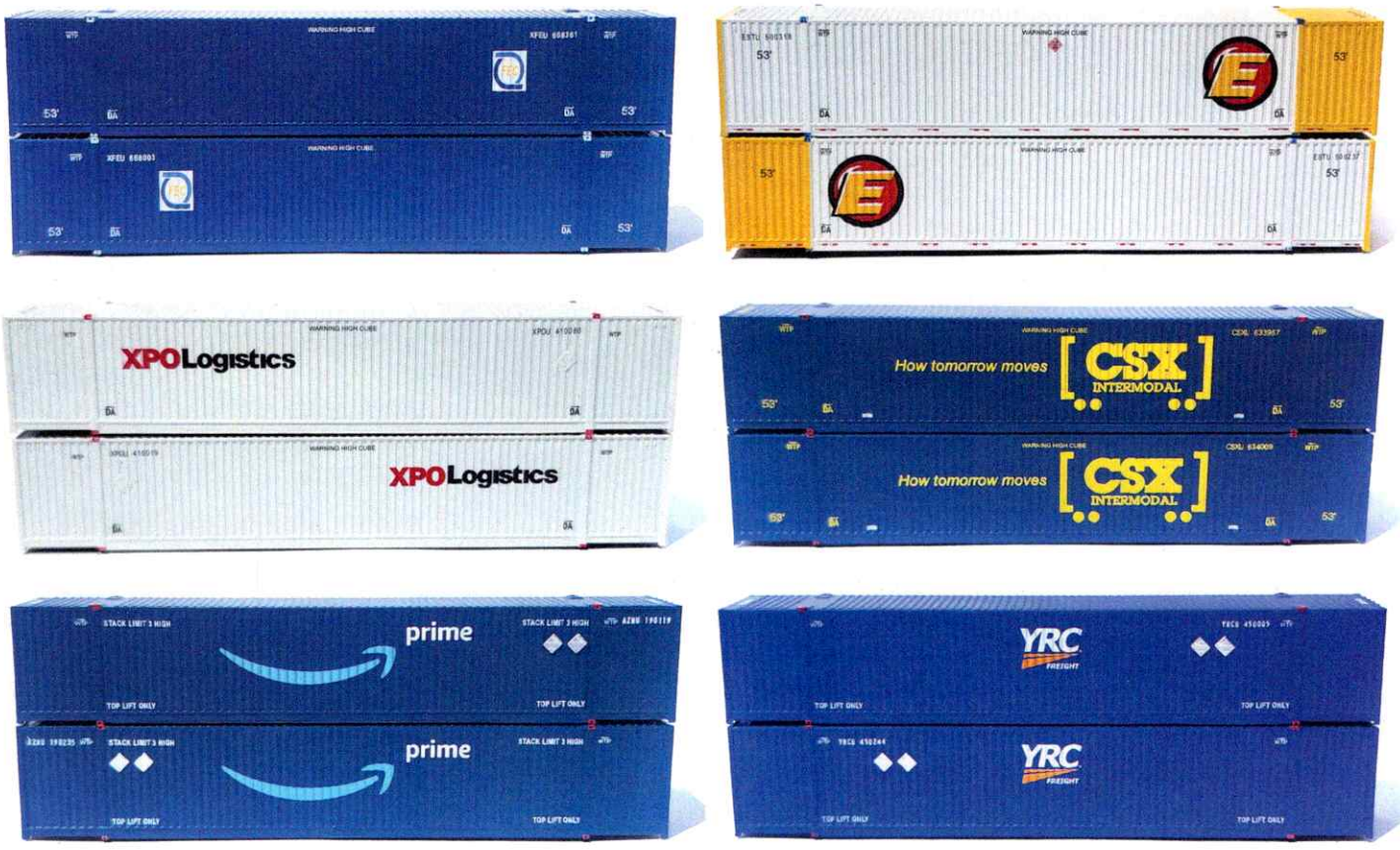

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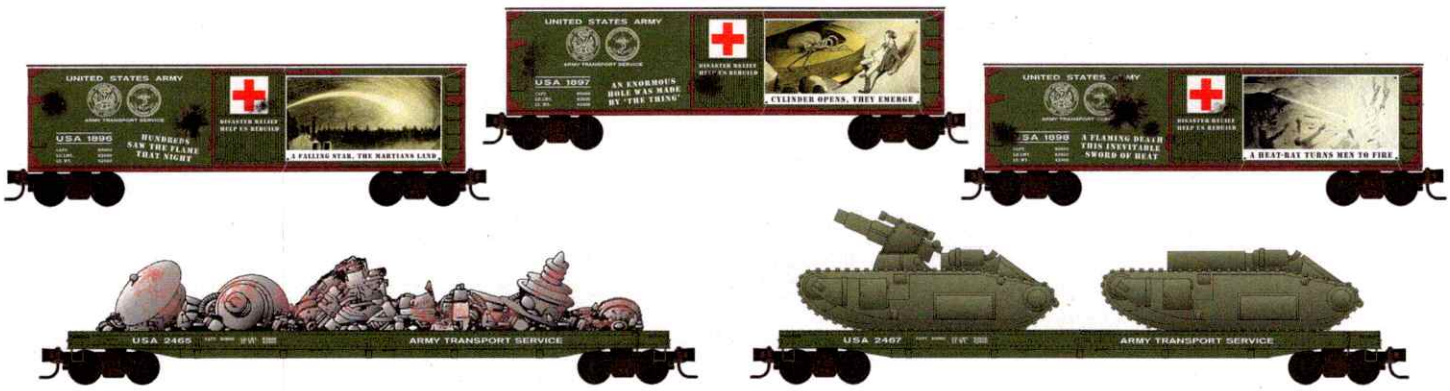
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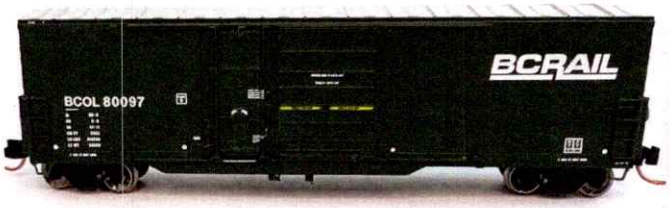

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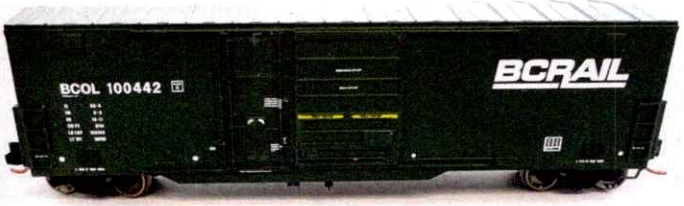

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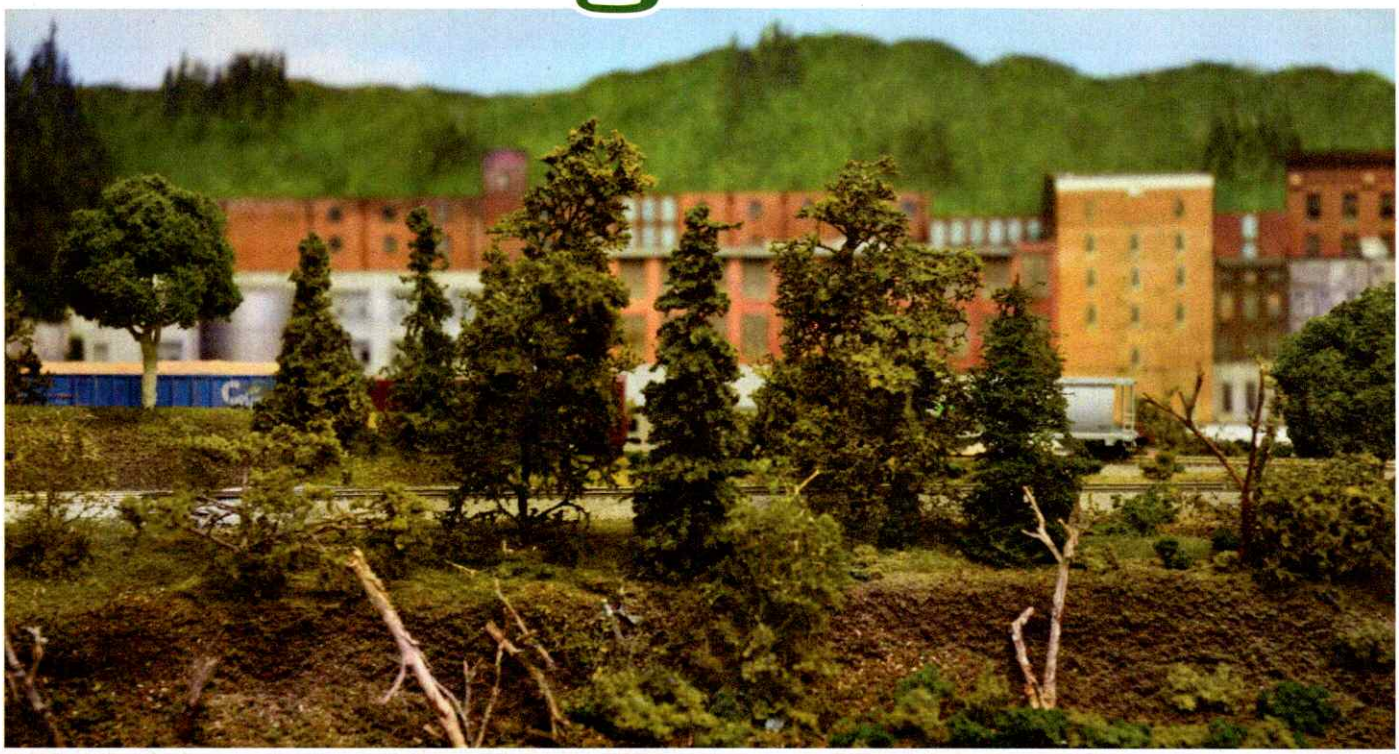
Detailing Continues



On The AT&SF Railroad, Part 1

by **Walt Huston**, Editor Emeritus

Photo 1

Photo 2

Photo 3

Even though I remain Powerchair bound, I do what I can for myself with the assistance of a few of my best friends. I have been assisted by Steven Shores and Greg Price, whom made it possible to locate and work on both locomotives and freight cars/passenger cars. They have also installed a buss line to make my Just Plug lighting system work as designed (very helpful). More recently, they have been installing Just Plug buildings and wired them in place.

I have been assisted by my modeling Buddy Dennis Murphy who is building some structures I couldn't work on due to my Doctors' orders that I cannot use any sharp knives until I am "released" by him to use these "dangerous" implements.

With all of the restrictions in place, I still feel compelled to keep moving forward on my layout. So, with my desire to have 4,000 trees on my layout, I have been making more deciduous trees and evergreens too. I am using the trimmings from Nancy's Azaleas for

Photo 4

the trunks and branches, and twisted wire with sisal rope spun with my handy drill, then trimmed with scissors to a typical evergreen tree shape, followed by a soaking with unscented extra hold hair spray (the kind that says "unscented" on its label, but really stinks in use). Then, while the hairspray is wet, I coat the trees with two dark shades of green ground foam in the smallest size that Woodland, Heki and Life-Like make. Once the ground foam has dried, I tap the trees lightly to remove any excess that did not stick. I store these trees for planting later by sticking them in chunks of 2" closed cell foam (***Photo 2***). I then turn to my stash of Azalea clippings and build a dozen or so trees for planting later with holes for their trunks to stick in the foam blocks and for planting them. As soon as I get a sufficient supply stockpiled, I will plant them all within my masses of trees (3,250 so far) (***Photos 3-5***). Yes, I have a lot of work to do to reach my goal, but that's a goal without a deadline (the best kind). Making trees is a relaxing task that provides you with a large forest in a relaxed format with excellent looking trees. Give it a try, I'm sure you will agree. I am equally sure you will have as much fun as I have experienced with my trees.

Photo 5

THE LEWISTOWN SERIES

Part 6: Pulling It All Together

by **Dan Lewis, MMR**

Photo 1: Time Freight 163 eases into Lewistown Yard, observing the eight mph speed restriction. The FTs with their lightning stripe paint scheme are still functioning, but they are gradually being replaced by F7s.

A town is more than a collection of buildings. It functions as a community, and for model railroaders, at least, that community focuses on the relationship between the town and the railroad. For modeling purposes, the town serves as an accessory to the rail lines that serve it. Space limitations mean that one usually cannot model an entire city, but one can model enough of the town to be suggestive of a larger community. Hence, in building Lewistown, I've tried to feature a number of things that directly interact with the North Montana Line of the Milwaukee Road. Several industries are served by spurs, including Lewistown Brick & Tile, Amundsen Implements, Gamble-Robinson, Montana Elevator, Finkbeiner Elevator, Lewistown Hide & Fur, and the Montana Livestock Association corral. In addition, several industries that are not immediately accessible to a railroad spur are served by the railroad with Less-Than-Car-Load (LCL) freight, such as, Lewistown Electrical Supply, Westcott Wire & Cable, Montana Hardware, Montgomery Ward, Coca Cola Bottling, J. Clements' Hardware, Rad Jones' Machine Shop, and Northwest Freight Lines. Theoretically, almost any business can receive LCL Freight, not to mention the citizens who live in town and may have ordered anything from a bicycle to a guitar amplifier.

Pulling everything together, then, is a combination of the visual and the operational. The visual side of things consists primarily of the structures that form the town. Structures alone are not enough, however. The town needs to be populated with people and detailed with all the miscellaneous elements that show occupation and the relationship

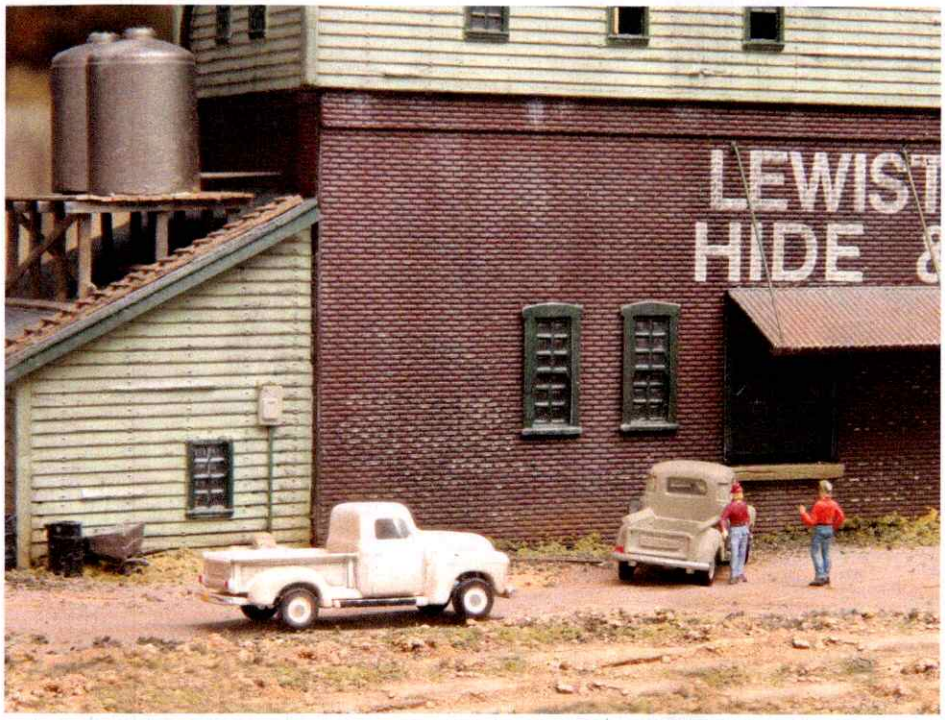


Photo 2: Painting small figures is a challenge, and you may wish to use an opti-visor for this delicate work. I confess I've never been able to successfully paint facial features, which are so very tiny as to be nearly invisible. One thing I particularly like about Preiser figures is that the master-carvers have reproduced believable wrinkles in simulating cloth fabrics. Notice, here, that there are wrinkles and folds in the jeans of the two figures.

of the town with the railroad. Here, it is important to highlight the ordinary and downplay the unusual. Plausibility in modeling comes from modeling the things people usually see, not strange features that are less well recognized.

Mini-Scenes and the Use of Figures

To this end, I like to model what can be called "mini-scenes," which is to say, scenes that tell a story in themselves, but at the same time, contribute to the overall plausibility of the town. Let me offer several mini-scenes as illustrations, starting with the two guys standing outside Lewistown Hide & Fur (***Photo 2***). While we don't know what they are discussing, it seems obvious they are chatting about something. Their postures, the one leaning on the wheel well of the Chevrolet pickup and other standing, are positioned to suggest they are in conversation. In general, I prefer the figures offered by Preiser (which can be purchased as white blanks with figures in dozens of

Photo 3: The banner was created using kitchen foil, painted white, lettered with dry transfers, and bent appropriately to simulate the rippling of such banners in a light breeze. The tiny flags were cut from colored tissue paper and super-glued to a strand of my wife's hair. Human hair is quite strong, but it is springy, so you cannot easily tie knots with it. If you need to tie such knots, artificial hair works much better.

Photo 4: Old tires, barrels, sign posts, board fences, signage, and weeds all combine to provide a natural setting for this scene. The flags, once again, are glued to human hair. The bicycles and bike racks are from Gold Medal Models.

Photo 5: Station scenes beg for family groupings, and fortunately, Preiser figures have a good variety that fits the bill. In painting female figures, it is common for shoes to match some part of their outfit, while for males, either brown or black is usual. Kids often have white tennis shoes.

Photo 6: Passenger Train No. 117 arrives in Lewistown with a typical consist of a couple of head-end cars and a chair car. Station stops at Lewistown were 10 minutes by Timetable, but out in the country, it was not unusual for passengers to flag down No. 117 or 118 and climb aboard with no station at all.

poses), and I paint them myself, so I can get the effect I want. In Montana, this means quite a lot of figures have jeans and boots and not nearly as many are wearing suits. In my opinion, Preiser figures are the best on the market. The poses are natural, and the detailing is excellent. In this mini-scene, both guys are wearing jeans, which is appropriate for a small town in Montana. The fact that they both drive pickup trucks also contributes to the area of the country being modeled.

The second mini-scene is a nod to my earlier modeling efforts before I settled on the North Montana Line as my prototype. My previous model railroad of several decades ago was called the Three Sisters Railroad (see the article in the Mar/Apr 1994 issue of *N-Scale Magazine*), so at the edge of Lewistown, I modeled a meeting of the TSRR Historical Society, complete with officers and a handful of society members listening to a speech (***Photo 3***). Once again, the placement of the figures is critical, the society officers stand on a raised platform beneath a banner, and the listeners all face the speaker.

The third mini-scene features local folks dropping by the Dairy Queen (***Photo 4***). As would be expected, about half the figures are kids, but there is some interesting variety in the adults as well. The empty lot to the right is a place where cars can park, and the board fence makes a good transition from the 3-dimensional modeling to the 2-dimensional backdrop.

The fourth mini-scene is at the Lewistown station (***Photo 5***). Notice the people are grouped, some sitting on benches, some clustered as families, and some isolated and standing alone – just the sort of configuration you might find on a train platform. The thing you want to avoid is positioning figures so they are all about an equal distance apart, which makes them appear artificial. People tend to stand in clusters of friends or family, not spaced out like trees on a tree farm.

Operations

While much of this series of articles has concentrated on the visual aspect of the town – structures, weathering, and so forth – here, I want to highlight a bit of the operational side of the railroad. From the beginning, I constructed this layout with operation in mind. While I enjoy rail-fanning, the climax of building a model railroad, at least for me, is to see it running like a real railroad, and my regular operating group of about ten individuals does just that. In a typical Op Session, Lewistown sees four Great Northern trains (GN had running rights on some MILW trackage), a MILW branch-line turn to Winnett, two MILW passenger trains (117 & 118), and four MILW

Photo 7: The prototype Spring Creek Trestle had two steel towers, but in selectively compressing it for my layout I settled for one. Speed restrictions on the trestle were 10 mph. For details in constructing of this trestle, see *Model Railroader* magazine (June 2020).

Photo 8: Time Freight 163 leans into the super elevated curve as it hits the edge of Lewistown with a string of reefers. Most of these reefers will go on to Great Falls, which in the 1950s, was one of the two largest cities in the state.

Photo 9: Team tracks, as the name implies, goes back to the days when rail cars were unloaded into wagons pulled by teams of horses. By the 1950s, of course, horse pulled wagons were only a memory of the older folks, but the name still stuck. Both the freight house and the team track ramp are scratch-built.

time freights (163 & 164 and 195 & 196). These provide a full evening of fun and challenge for the Lewistown Yardmaster. In addition to the normal switching for local industries, both on spurs and at the freight station, there is a GN Interchange track where freight cars of virtually any kind can be exchanged between the two railroads.

Passenger Service

Passenger trains No. 117 and No. 118 ran daily between Harlowton and Great Falls, a round trip of 400 miles with Lewistown and a number of other small towns in between (***Photo 6***). On the prototype, the MILW and the GN jointly built a huge wooden trestle to the north of Lewistown in order to cross the large coulee at Spring Creek, and both railroads used this trestle in the approach to the town (***Photo 7***). Each train crossing Spring Creek Trestle had to stop and register for the use of the trestle, the prototype of which was 1,391′ long (and I selectively compressed to 785′). Each railroad had its own station in Lewistown, but due to limitations of space, I elected to bring both GN and MILW trains into a single station on my layout.

Time Freights

Four MILW time freights served Lewistown daily, except Saturday, according to the Employee Timetable of January 15, 1953, a copy of which I was able to acquire from Leonard O'Dell, long-time conductor on the line in the 1940s and 50s. All four were second class trains with No. 163 and No. 164 running from Harlowton to Lewiston and back (***Photo 8***), and No. 195 and No. 196 running from Lewistown to Great Falls and back. Within town limits, there was an eight mph speed restriction for trains. In addition, a smaller branch line of 59 miles ran from Lewistown to Winnett and a handful of communities to the east, and trains No. 291 and No. 292 plied this branch. The Timetable also states that "Trains 291 and 292 will carry passengers." This, of course, meant a mixed train with the coach usually positioned at the end behind any freight cars.

LCL Freight

LCL freight calls for a freight house and a team track, and I have included both, each scratch-built (***Photo 9***). Here, boxcars with LCL freight can be spotted during Op Sessions, and at the team track there is a platform for off-loading vehicles, such as the new John Deere tractors that have just arrived for Amundsen Implements.

Northwest Freight Lines, where my older brother used to work right out of high school, was a small LCL trucking firm (***Photo 10***). We lived in Billings, so I'm not sure whether the company had an outlet in Lewistown, but in honor of my brother, I've located a trucking freight house near the rail yard. This provides LCL interchange between rail and truck.

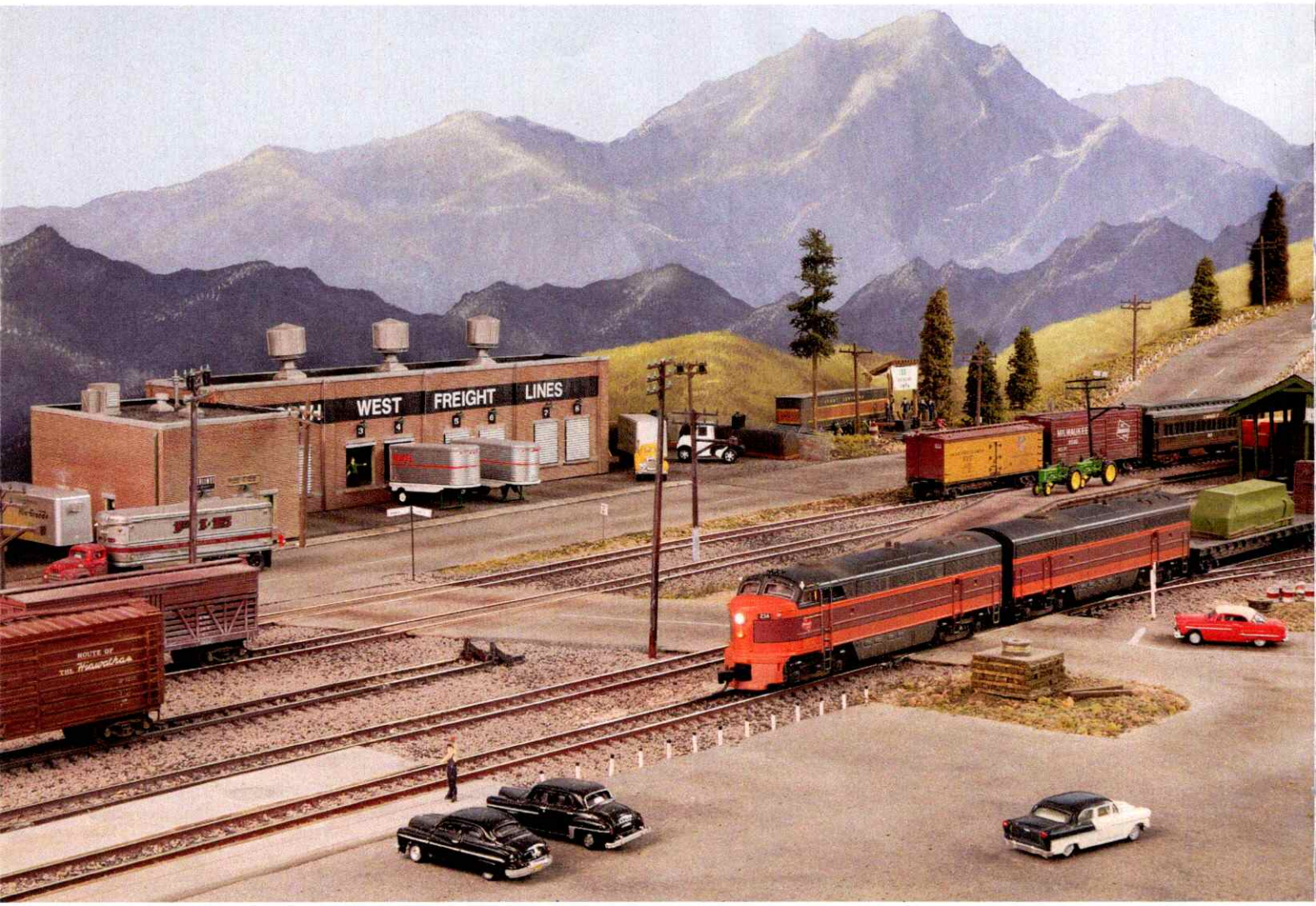


Photo 10: My version of North West Freight Lines is a kit-bash and heralds the uptick in competition between rail and truck. Here, an extra from Great Falls, headed by a brace of C-Liners, is on the grade crossing at the outskirts of Lewistown. The extra flags are barely visible on the lead engine. C-liners, while they were common enough farther east, were not on the locomotive roster of the North Montana Line. Hence, I'm using a bit of modeler's license for their occasional appearance on my layout.

Livestock

Most of the towns on the North Montana Line had stock corrals, and Lewistown was no exception (***Photo 11***). Local ranches shipped cattle eastward to the meat packing industries, usually in stock extras. Due to the 28-hour rule, stock extras were treated as fast freights, since livestock could not be confined to a car for more than 28 hours without unloading the beasts for a 5-hour stop of water, feed and rest.

Motor Vehicles

As much as anything else, the motor vehicles on your pike will fix the era in which you are modeling. Various manufacturers have offered N-scale vehicles over the years, including, GHQ (cast pewter kits), Cars N Scale (solid resin castings), Road Apples (solid resin castings), Sylvan Scale Models (finished vehicles), Wheel Works (cast white metal kits), Showcase Miniatures (cast white metal kits), and Classic Metal Works (finished vehicles). I use selections from all of them and more, but here I want to focus on some vehicles that are not so well known. These are the ones offered by Brian Fedoroff (*BFedoroff@twmi.rr.com*), a master-craftsman who has created a delightful line of N scale motor vehicle kits. Brian offers more than 180 kits, ranging from the 1930s, 40s and 50s and up into the modern era as well. He has kits for Jeep, Ford, Nash, Chevy, Chrysler, Plymouth, Hudson, Buick, DeSoto, Kaiser, Dodge, Mercury, Packard, Oldsmobile, Studebaker, Cadillac, Pontiac and American Motors Corporation. You will find vehicles in Brian's line that simply are not available anywhere else! Where else can you get a 1953 Kaiser Manhattan 4-door or a 1965 AMC Rambler, for instance? His kits include sedans (both 2-door and 4-door), coupes, pickups, station wagons, dump trucks, buses (school buses, Greyhound, and Trailways), and semi-tractors and vans, not to mention an army tank. Brian doesn't use a website, but if you contact him at the email listed above, he will send you an itemized list of all his kits with a photo of each one.

The kits are quite simple, consisting of a body and an underframe with interior (***Photo 12***). Other than the task of removing the light flash in the window openings, painting them is the main

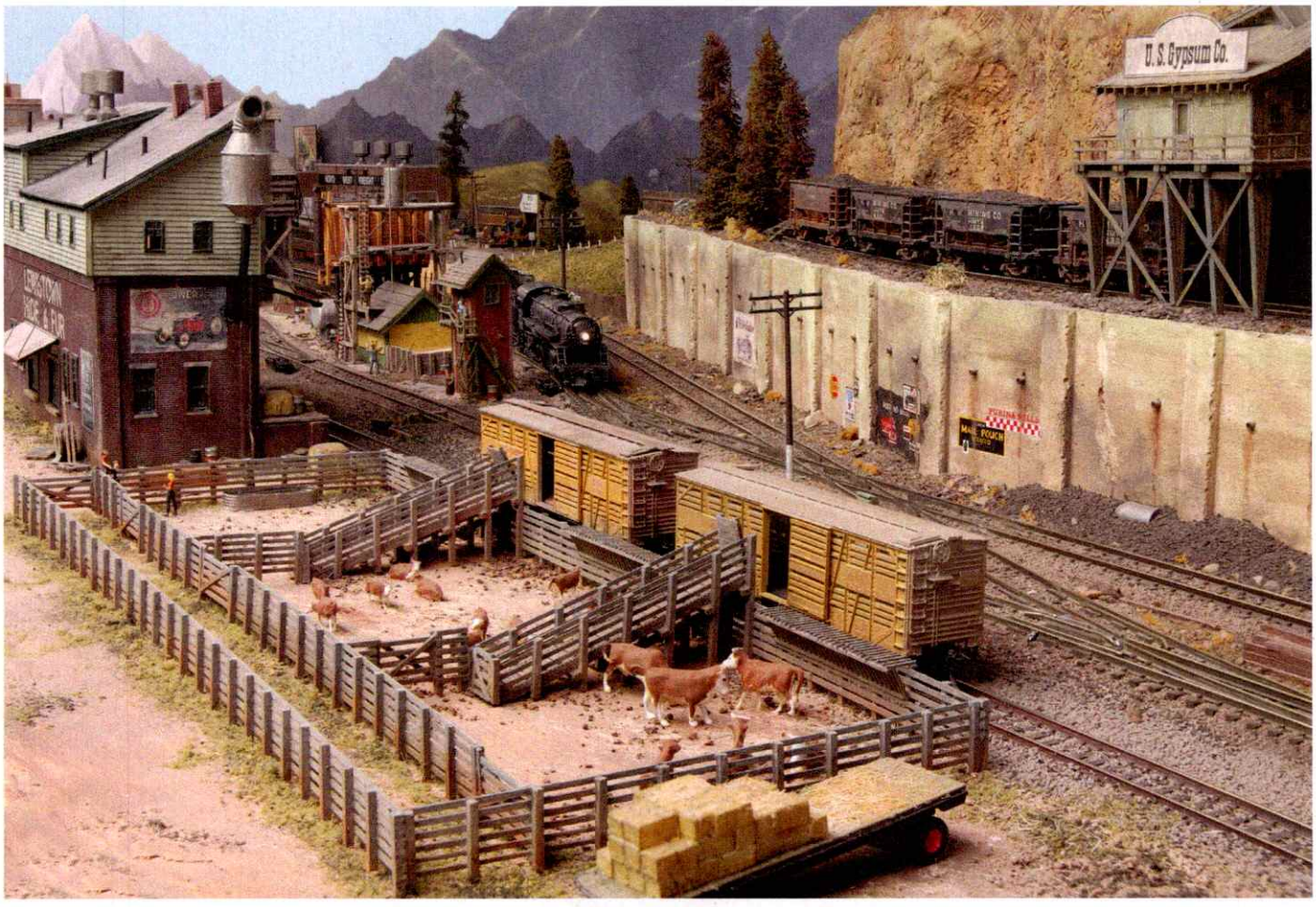


Photo 11: Livestock corrals were usually constructed with a "run" from which animals could be driven into the correct pens. Though from this angle you can't see them; there are lower loading chutes on the far side of the ones visible for loading cattle into single deck stock cars. The higher chutes are for double-deck cars carrying sheep, calves, or other smaller animals. The corrals are scratch-built, and for cow pies I used coffee grounds. Z scale cattle serve as N scale yearlings in the middle corral.

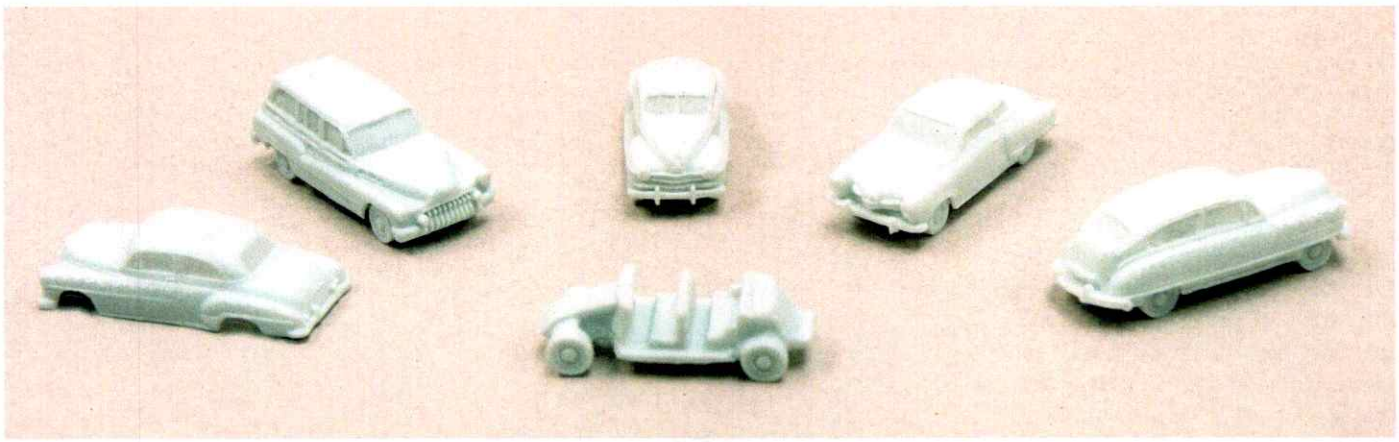


Photo 12: Here are five of Brian's kits, *from left to right*: 1952 Chevrolet 2-door sedan (dissembled); 1950 Buick station wagon; 1946-48 Plymouth coupe; 1950 Studebaker starlight coupe; 1950 Nash 4-door sedan. The only prep work is to remove the thin flash in the window openings, which can easily be done with a #11 blade and needle files. Here, be especially careful when working around the window posts, since they are fragile. Once done, the kits are ready for painting.

task. Of course, should you wish to do so, you can leave the window flash and simply paint the windows black, but I prefer to remove the flash and glaze the windows with Micro Kristal Klear. To paint clean lines for chrome molding and/or other color combinations, I use frosted Scotch Tape for masking (***Photo 13***). When finished, Brian's cars offer some truly unique motor vehicles that you are unlikely to find elsewhere (***Photo 14***).

Clutter, Junk, and Detailing

Supplying your town with the impedimenta of ordinary life will give your town a "lived in" look. For years, I searched hobby shops both in the United States and a few other countries

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Fountain Valley, CA 92708

Photo 13: In painting small motor vehicles, one of the challenges is getting perfect circles for things like whitewalls, tire rims, hubcaps, and headlights. Generally, the wide whitewalls were more typical of higher end cars, while less expensive models often just had blackwalls. I have had good success with "stamping" the circles using either a wooden dowel or a round toothpick with the ends cut off. Dip the dowel or toothpick lightly in the paint and carefully "stamp" it on the wheel. For this Buick Roadmaster, I stamped the whitewalls first, then after the white paint had dried, I stamped the tire rim color (slightly smaller), and finally, the silver hubcap (smaller yet). The trim I painted with D&RGW Building Cream and Rust.

for detail parts. Today, with the demise of many hobby shops, most of that search must be conducted on-line. Still, the variety of details will serve to pull together the various scenes that you model. Some of these details you can create yourself, like piles of lumber, scattered railroad ties, and the like. Others, like stave barrels, oil drums, spools of electrical wire, milk cans, tires, garbage cans, and tanks can be purchased. Anywhere there are kids, there will be bicycles.

It may seem obvious, but it is best to add details that "fit" with different kinds of scenes or buildings. Milk cans at the creamery, piping, sinks and toilets at the plumbing store, the old

Photo 14: Two finished autos, a 1950 Studebaker Starlight coupe and a 1948 Plymouth coupe, are nice additions to the layout. For colors, one can google the cars on the internet and select "Images," but bear in mind that many of these images are of restored vehicles and may or may not have prototypical color schemes. A more accurate guide might be the large collection of period brochures of the Norwegian Hans Tore at: *www.lov2xlr8.no/broch1.html* For the Studebaker, I already knew it was maroon, since we had one just like this as our family car when I was a boy.

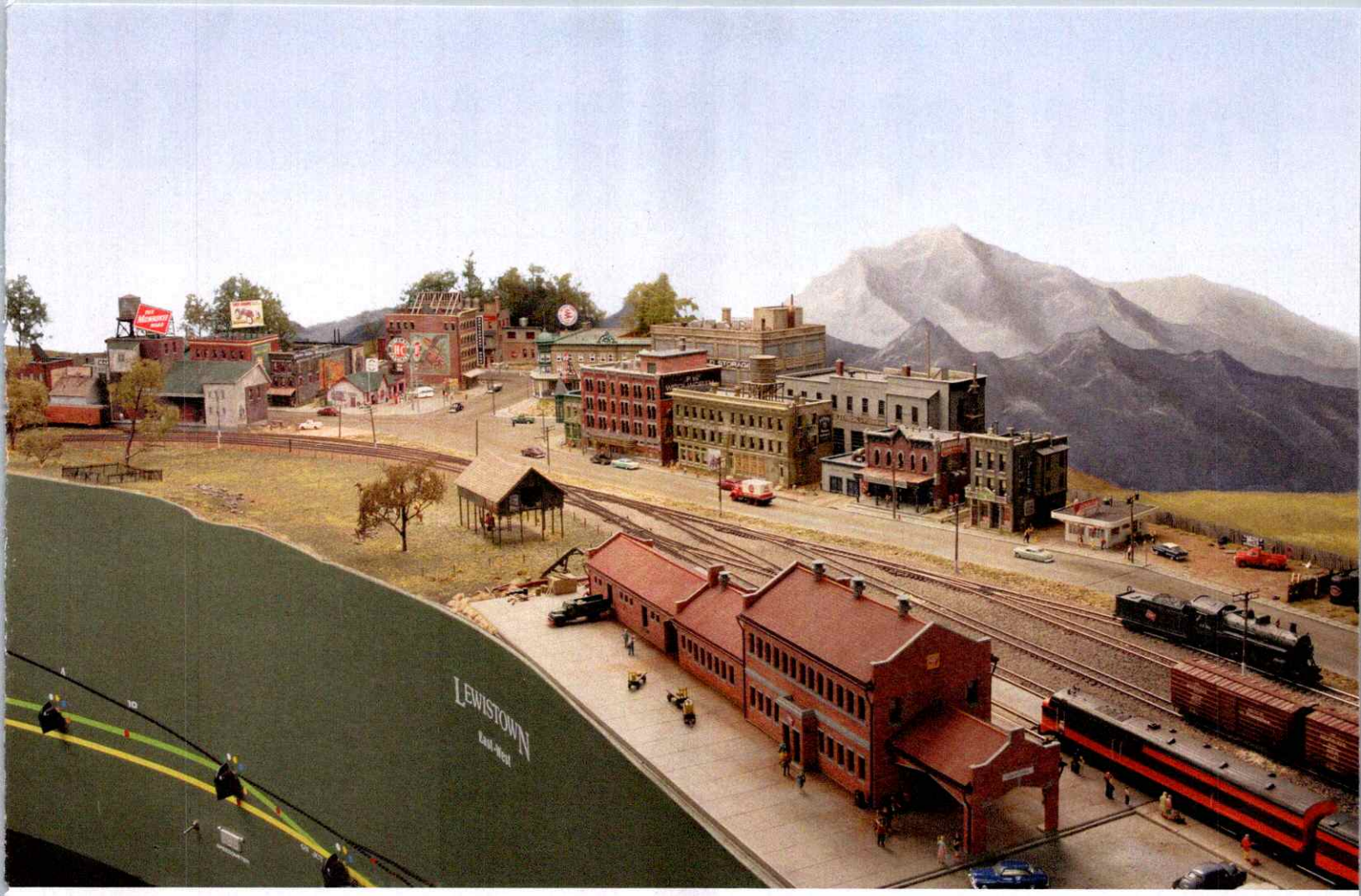


Photo 15: Here is one last shot of the heart of Lewistown that includes much of what I've described in this series. From the station, which anchors the town to the railroad, to the downtown buildings, to the streets that link everything together, to the painted backdrop – all work together to produce a locale where, if one could downsize oneself to the size of Lilliputians, it would be fun to just stroll around and explore everything!

green post office boxes standing at the station, benches for sitting, wooden pallets at the grocery distributor, bales of hay and water tanks at the corral—all these details and more bring the layout to life. I found some exquisite baggage cart kits in etched brass from Micron Art which enhance the platforms of my stations (*www.trainz.com/collections/micron-art*). A variety of fences, including board fences and cyclone fences, posters and advertising signage—all these details add zest.

Vegetation

I should say a final word about vegetation. It is important to observe carefully the flora of the area you are modeling. Since I model central Montana, a region that has limited rainfall, the grasses, not to mention sagebrush, are accordingly sparse with lots of dirt showing. Hence, modeling dirt with various kinds of plaster is important, especially grainy plaster like Sculptamold or Struct-o-lite, in order to achieve the proper ground texture. When modeling vegetation with ground foam from Woodland Scenics or other manufacturers, I work from dark to light, dark green on the bottom and lighter greens on the top. Given that I want a lot of dirt to show through, I sprinkle the ground foam sparingly and randomly, using a tea strainer. What I want to avoid is ground cover that looks like a mowed lawn in Philadelphia! Also, small rocks, tufts of higher grass here and there, and clumps simulating sage brush help create a convincing texture. Look carefully at the ground cover in ***Photos 2-4, 8, 9 & 11*** as examples.

Trees are also important, not only because particular kinds of trees are typical for certain regions, but also, because they tend to soften harsh edges and help blend scenes together. In Montana, most of the trees are conifers in the outlying areas of the mountains. However, in towns, many trees are deciduous and have been planted by the residents. Personally, I prefer to make my own conifers out of bamboo shish-ka-bob skewers, furnace filter material, and ground foam. Deciduous trees I make from Super-Trees, usually thickening the lower trunks with Woodland Scenics Flex-Paste before painting. What is very important is to plant your trees randomly in small groups and clusters. Trees do not grow naturally the same distance apart, and you will want to capture this randomness. Also, trees are especially helpful in disguising the transition between the 3-dimensional modeled areas and the 2-dimensional plane of the backdrop.

Well, there it is! For those of you who have followed this series on constructing Lewistown, I hope they've been informative and inspirational. I certainly have enjoyed putting them together. My best wishes for your own modeling of towns (***Photo 15***).

Paul's Depot Train Station Kit

Kit by Osborn Model Kits

by **Dennis Murphy**

Photo 1: The packaging.

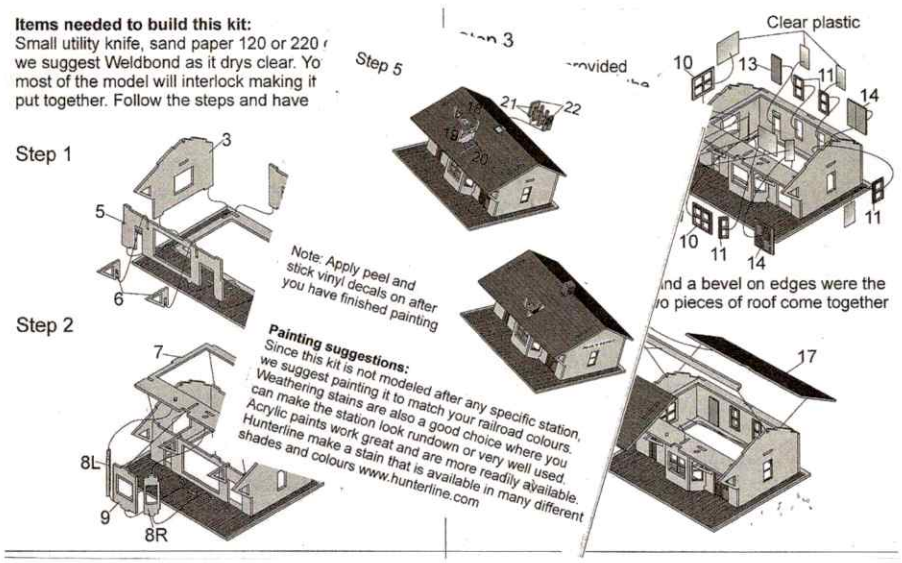

Items needed to build this kit:
Small utility knife, sand paper 120 or 220
we suggest Weldbond as it drys clear. Yo
most of the model will interlock making it
put together. Follow the steps and have
Step 1
Step 2
Step 5
Note: Apply peel and stick vinyl decals on after you have finished painting
Painting suggestions:
Since this kit is not modeled after any specific station, we suggest painting it to match your railroad colours. Weathering stains are also a good choice where you can make the station look rundown or very well used. Acrylic paints work great and are more readily available. Hunterline make a stain that is available in many different shades and colours www.hunterline.com
Clear plastic
nd a bevel on edges were the
o pieces of roof come together

Photo 2: The (very) simple directions.

All right! Just think of all the fun, easy and cheap projects we have worked on together over the past few months. Good Job! Well, let's get cracking and start something new. This issue, I'll be introducing a new company (for me anyway) called Osborn Model Kits (*www.osbornmodelkits.com*), a Canadian company.

What's fun about this company is it has tons of model railroad structures in multiple scales. They have an assortment of detail items, and structure kits in HO scale, and also N scale. For this issue, I chose Paul's Depot Train Station

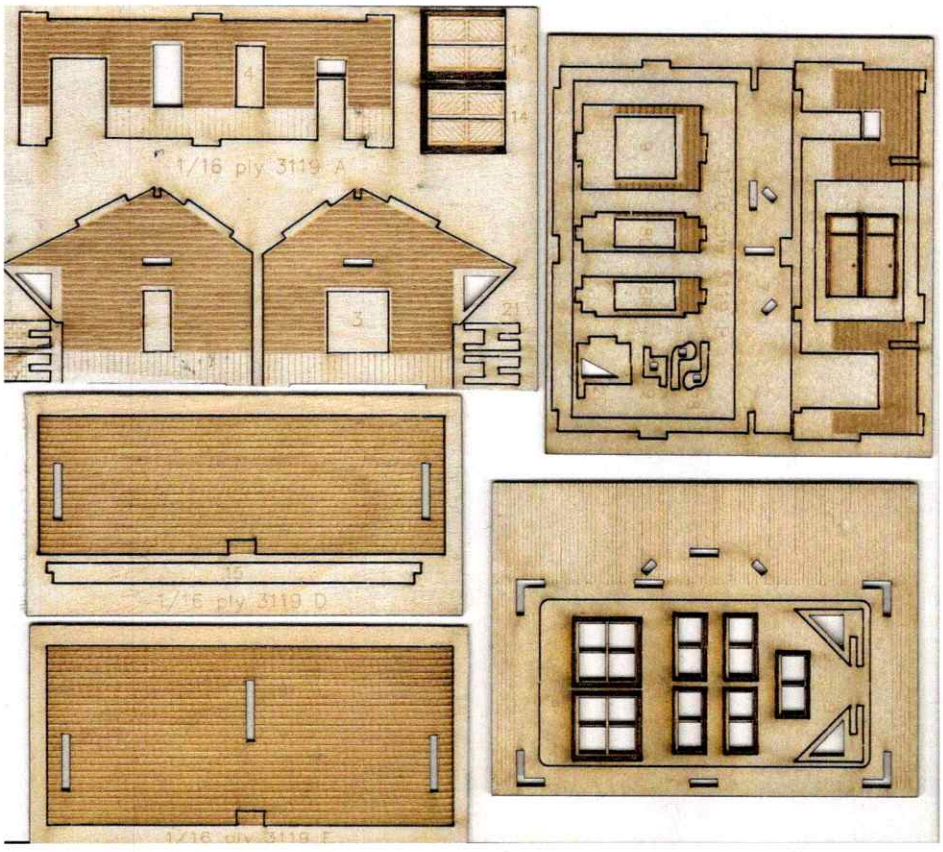


Photo 3: The very nicely laser-cut set of parts.

Photo 4: With keeping within the theme of cheap and easy, I decided to use my rattle can paints. Worked great, but remember to have lots of ventilation.

kit, which fits in nicely as inexpensive at under $20. Oh yes, and they also have wood aircraft kits if that fits your fancy.

Anyway, as always, once I receive a kit, the first thing I do is have a close look at everything for missing or broken parts. And as expected, all was well. What I found was a very simple pile of nicely laser-cut wood parts, and some very simple directions. This should be an easy build.

The next question always is: How should I color the parts? I found these parts are made of a very sturdy micro plywood (originally developed for the aircraft industry), which broadens my horizons of paint possibilities. With some wood products, I stay miles away from paint, but not this kit!

In keeping with the theme of easy and cheap, I decided to go with my rattle can paints. Who knows, it could work. If you go this route, make sure to purchase the flat, or at least the satin finish variety. For structures, anyway, NEVER use gloss finish paint. When was the last time you saw in real life a shiny gloss structure? The hardest part of this entire project, for me, anyway, was masking off the two different colors.

Once the paint was good and dry, it was time to figure out how this project goes together. To get started, I decided to add a bit of color to the decking before the walls are installed. So out came my dry weathering powders that made short work of that chore.

Now, the directions tell you to install the walls first, and add the window

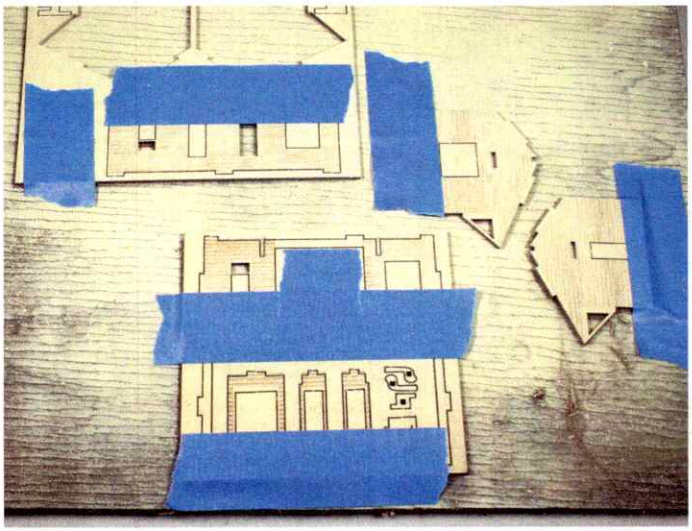


Photo 5: The hardest part (if there was a "hardest part") was masking off the parts for painting.

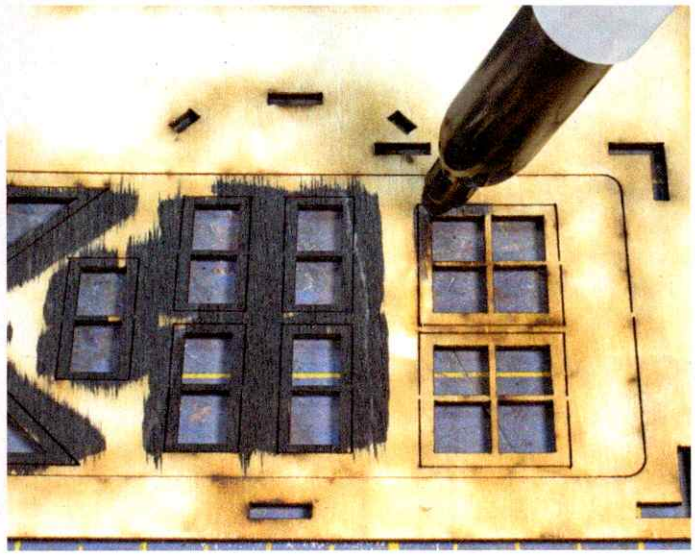


Photo 6: I colored the window parts with my Magic Markers. Easy-Pezy.

Photo 7: The parts all laid out and ready to go. I guess I need to get busy and put it together!

details next. Well, being the rebel that I am, I decided to install these window parts while the wall sections were still lying flat on my workbench. This is a personal choice, but it just seems to work better (for me anyway) while the wall sections are still loose.

Now that we are at a point where adhesives are in play, it might be a good time to talk about glue. This is another personal choice, but I like to use good old-fashioned household white glue. It dries (mostly) clear, stays flexible when dry, is plenty strong, and my favorite, it's cheap, but remember less is more. Always use the very least amount of whatever adhesive you choose to hold the parts together.

It looks like it is time to install the wall sections, and this kit is so simple that it's just about impossible to mix things up. When building the walls, make sure everything is plumb and

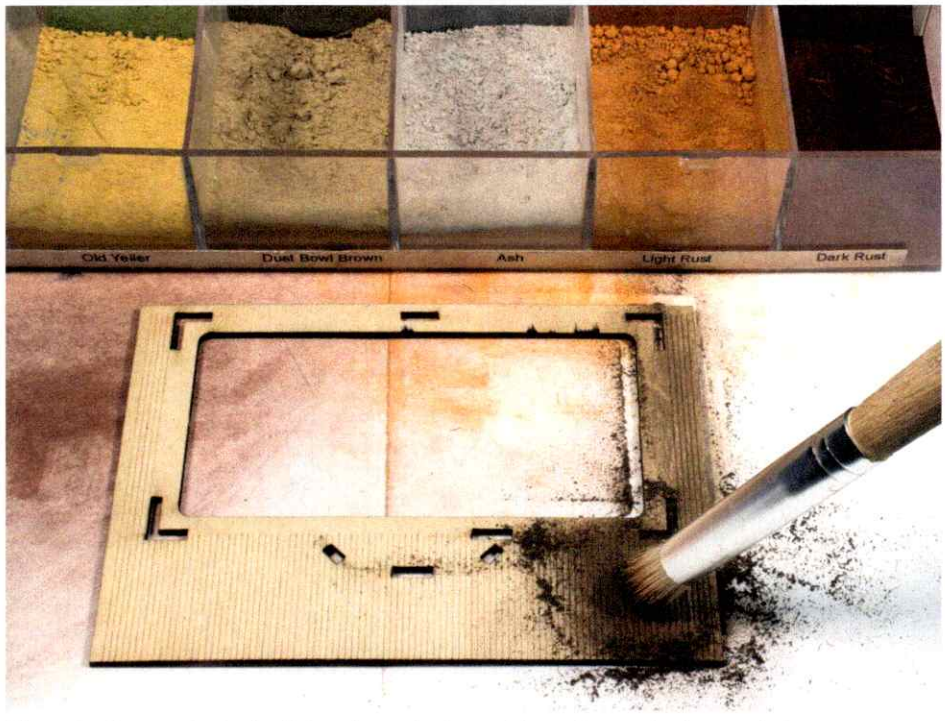


Photo 8: To start, I added a little color to the base with my dry weathering powders.

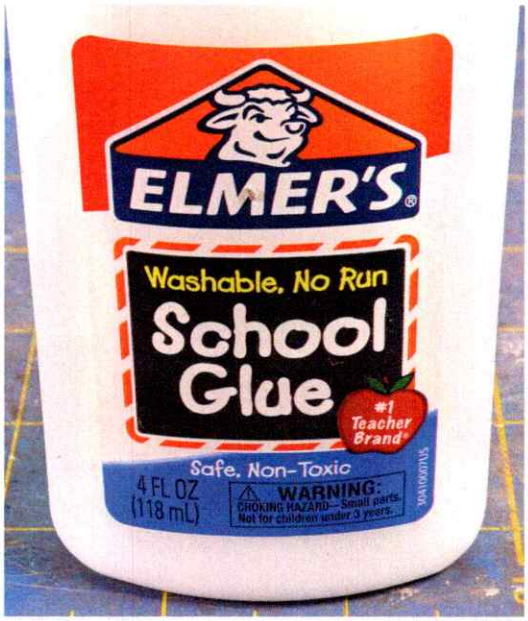


Photo 9: Of course, we need some adhesive. I like to use my old friend Elmer's white household glue.

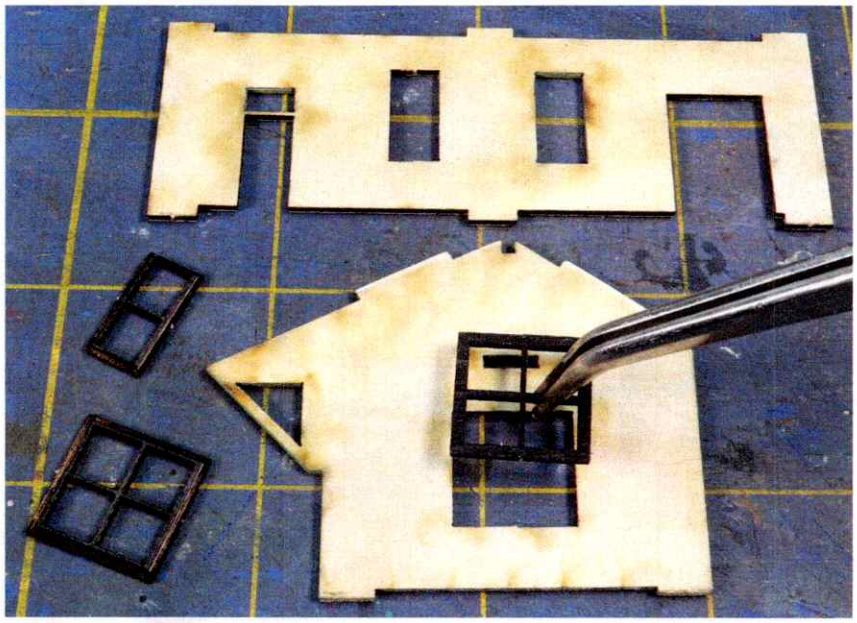


Photo 10: Start by installing the windows while the walls are flat on your workbench. Yes, this is not the order the directions tell you, but it works better for me.

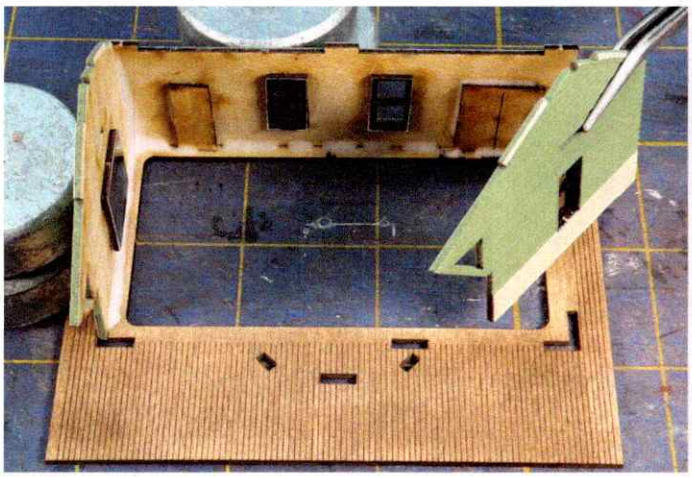


Photo 11: It's time to install the walls. This kit is so simple that you can (almost) not mess it up.

Photo 12: Make sure as you start using your adhesive that everything is square and plumb, and of course, use your handy helpers to keep everything in place.

square before the glue gets too far along in the drying process. And of course, have your handy helpers hold everything in place until the glue is good and dry.

I found building the front small sections could be a bit problematic. The two smaller sections have a distinctive left and right orientation, so look for the notch that goes toward the base wall. Take your time here and you'll be fine.

Oh NO! I made a little mistake, again. I find that, with almost all the projects I build, I make at least one mistake, and this one is no different.

Photo 13: (left) The front section can be a little tricky, as the smaller sections have a left and right side orientation. Look carefully for the little notch that goes toward the main wall.

Photo 14: OH NO! I made a little mistake (again). Notice the small tab on the end of this part? I should have installed this part as the walls were going together. Ah yes, such is life. I nipped off the tab, and all was good.

Note the little tabs on both ends of the section that fits on the top of the walls. This part should have gone in when the sidewalls went together. Oops? Well, a little nip-nip and off with the tabs. Problem solved.

Let's see, what is next? Oh, right, it must be time for the roof. I found these parts went on easily and fit just right. I found that it was a bit challenging using my handy helpers at such an angle. But all came out well.

Almost finished. The only chore left is building the chimney and the signal arms. Make sure to look carefully at how these go together, as they are a bit tricky. And then you're done! All told, including paint and glue drying, this it took me about two fun-filled hours to complete. If I were to rate this project, I would say it's way down at easy beginner level.

You might even call this a good first project for beginning modelers. Yes, it would pose some challenges, but if you

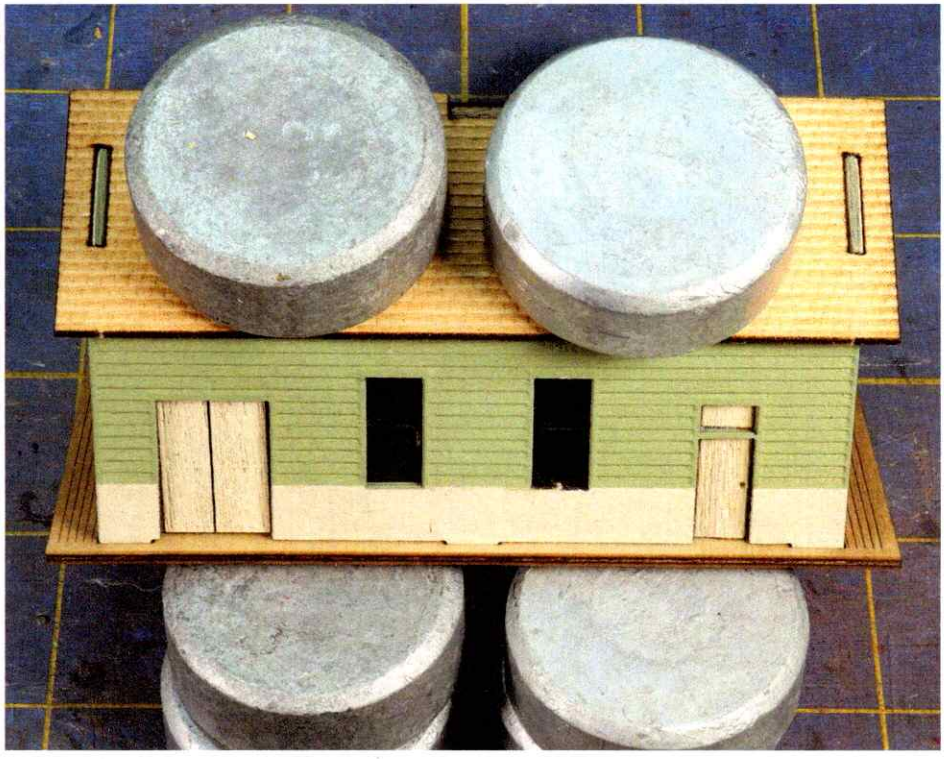


Photo 15: Holding the roof sections in place was a bit challenging, which gave me a chance to get creative.

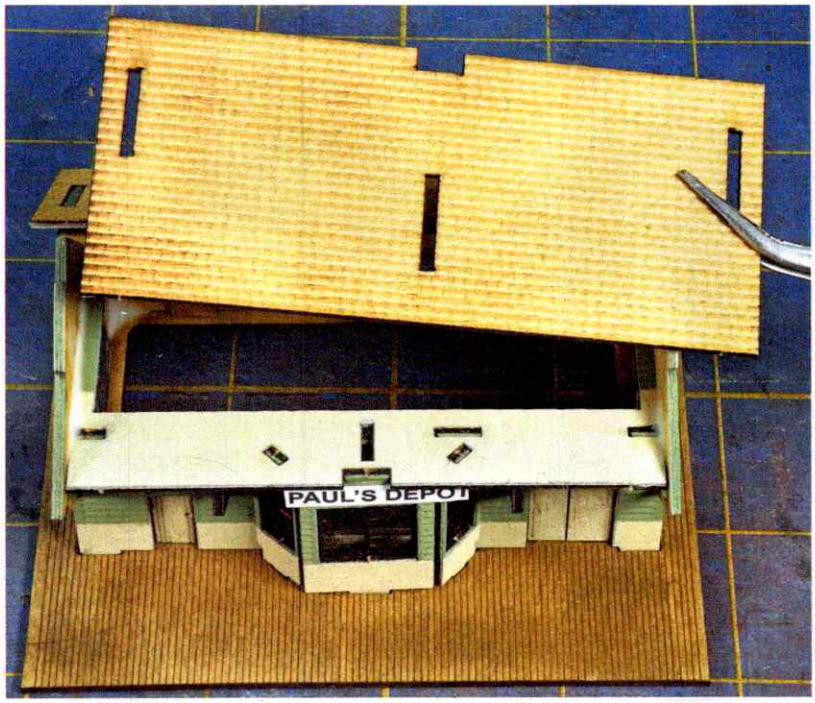


Photo 16: On goes the other roof section.

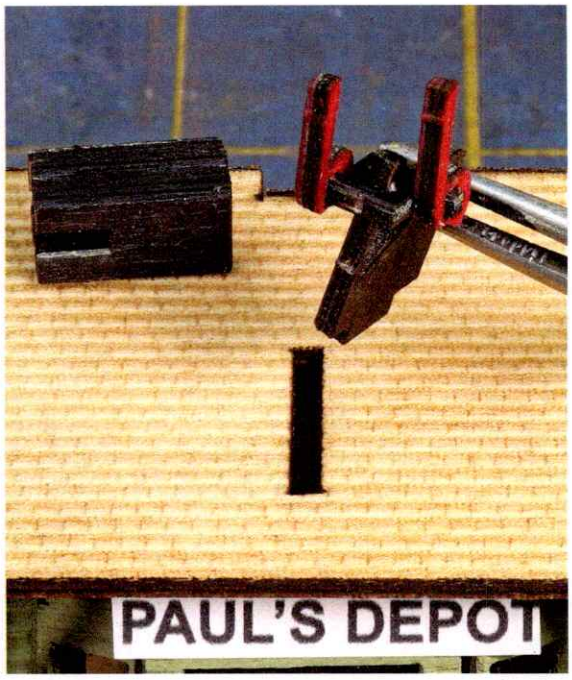


Photo 17: This kit includes other small details. Make sure to take the time and finish everything.

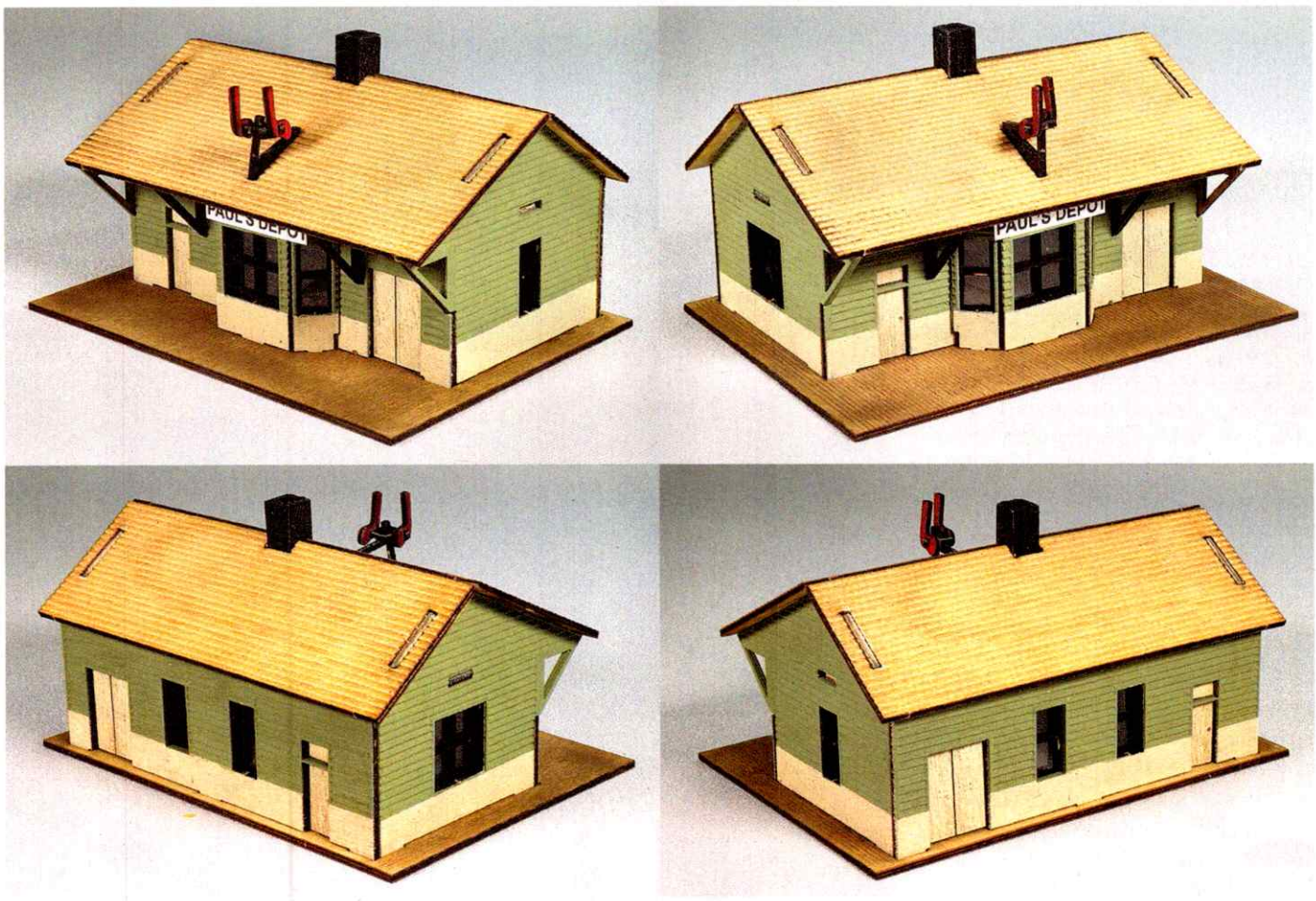
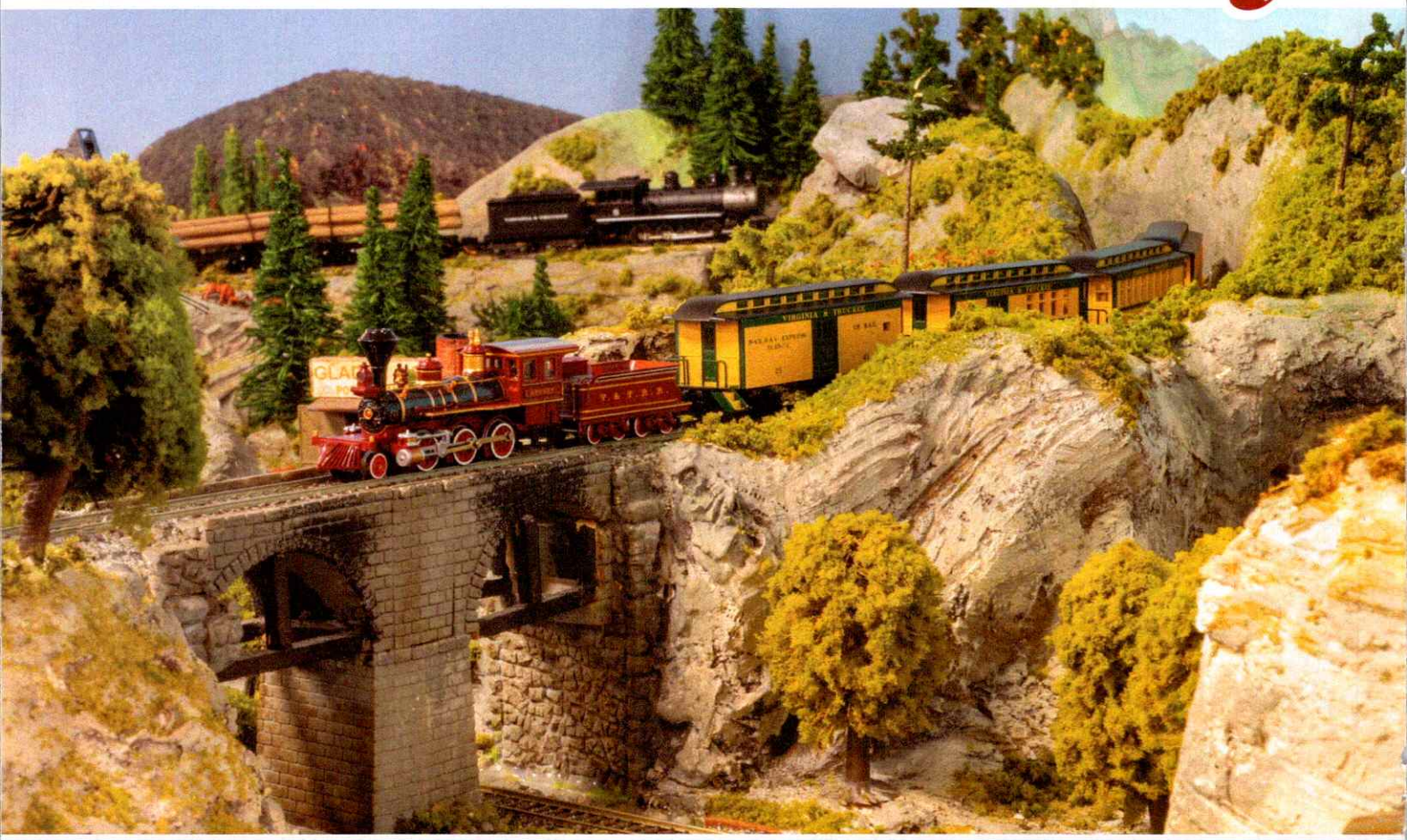


Photo 18: The finished model.

mess it up (which would be difficult), who cares. You must start someplace, and this is as good as they get. And besides, it's a cheap investment (as I said earlier, it costs less than $20).

Have fun with your hobby, and send in some photos of what you have been working on. I would really like to see them.

Indian Valley



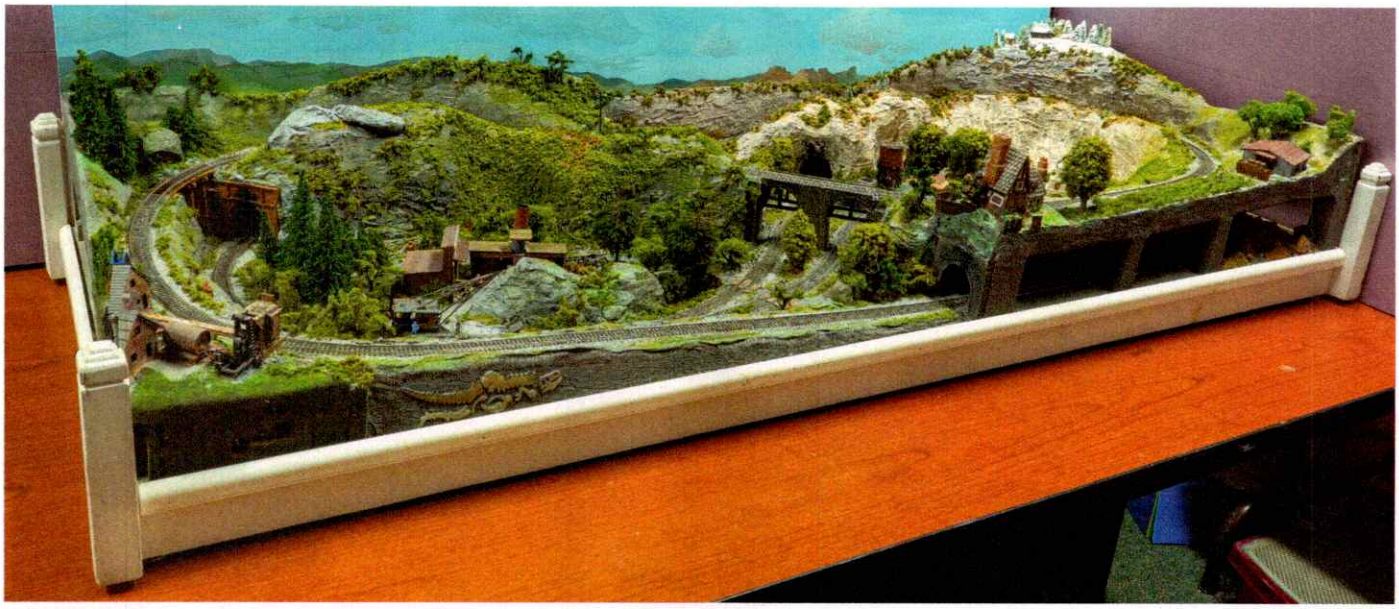
by **Ken Kilby**

Pride of the fleet: The 2-6-0 "Storey" (named after Storey County in Nevada, where it originally ran), crosses the viaduct at the head of the only "All First Class" excursion train in the fleet. The fully restored mogul only makes the scenic run around Indian Valley twice a month, so tickets are hard to come by and sell out a year in advance.

Big vs Small:

I've always enjoyed reading model train magazine articles about really big layouts. With each new issue I would rush through the pages anxiously hoping to find photos and stories of well-detailed, large layouts. It didn't matter what scale it was or whether it was steam or diesel, as long as it was an empire sprawled over a good-size piece of real estate, I was happy. And so, like many other railroad "baron" wannabes, I dreamed of stepping into my garage, flipping on the light switch to reveal a fully detailed "Franklin & South Manchester" or "Cumberland Valley"

Showcase: A unique feature of the layout is the plexiglass enclosure, which when installed, gives it the appearance of a "Showcase." The layout is enclosed on all sides, except the painted hardboard backdrop. The fancy carved corner posts and white trim add a nice touch. The plexiglass has cutouts in the paint so you can see a little bit of what's going on down below.



Compact Layout: With the plexiglass removed, the layout is ready for operating. The layout and railroad are named after the real location and company which existed for a brief time in Plumas County, California. The power pack and controls are located under the mini-tipple scene in the lower left corner, which lifts up and out for access. The layout is pretty impressive for its size; 20"×50".

Indian Valley RR: Making its daily rounds, IVRR #1313 winds its way up the hill, stopping at local businesses and small industries along the way, usually requiring only one or two cars. The well maintained NW2 is one of IVRR's two locomotives (both diesel). Meanwhile, a Southern Pacific "Black Widow" passes through on the valley floor, on its way to the "big cities."

layout already up and running.

I had already built several small layouts starting with the standard 4'×8' plywood sheet, expanding it a little bit here and there. Although these layouts were fun, my dreams quickly turned to building a really big, super-detailed layout. Of course, the terms "big" and "small" are entirely subjective. I think of "big" as any layout that would fill a decent size room (around the walls with a peninsula). A friend of mine is building a layout in a room inside his house, but it's in the middle of the room on a 4'×8' table. To me, that's kind of a small layout, but, like I said, it's totally subjective. Most folks would probably call it medium size, which I would venture to guess is what most home layouts are.

And then of course there's the scale factor; a lot more railroading can fit in a relatively small space with N scale than with HO in the same space.

Reality Bites = Moving Forward: At last, the opportunity to build my "dream layout" finally arose. I had successfully negotiated for the single side of the three car garage of our new house. I already had a track plan and materials list and was eager to get the project started. The layout was going to be a folded dog-bone with a double

Log hauler: One of the few major industries in Indian Valley, logging is permitted and controlled on selected tracks by special arrangement with the Forest Service.

Steam Power: Although the IVRR's motive power consists of two diesel engines, quite a few steam locos still work the valley regularly. All of the tourist excursion trains are headed up by old 4-4-0s and 4-6-0s that have been fully restored.

Angels Hollow: Deep in Indian Valley lies Angels Hollow, one of the locations in the valley that the IVRR makes regular stops at. Most of the other small towns and villages in the area were abandoned after the copper mines and kaolinite were played out. Angels Hollow has a very dark past and is not to be visited by the faint of heart.

Mini-mine: The diminutive mine barely produces enough ore to pay for itself. The miners down below have to work pretty hard to get the mineral up to the surface with the old tipple that barely works.

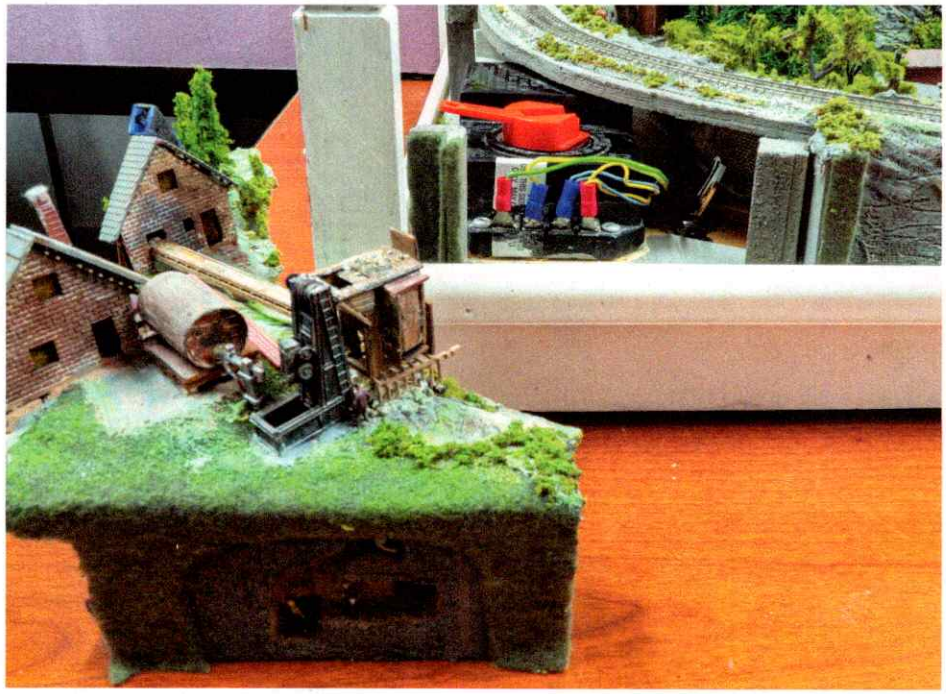
track mainline with multiple spurs and sidings for operations. However, much to my dismay, the actual building of the layout went much slower than I anticipated. For various reasons, mostly self-imposed, the construction seemed to drag on forever. By the time I was halfway through track laying and wiring, I was getting that "deer in the headlights" effect. I hadn't anticipated the level of commitment to that size of a project. Eventually, I decided to just get the track done so I could run trains and finish the rest later. Unfortunately, as time passed, I became less enthusiastic about expending the time and energy required to finish the layout and never completed it. I also didn't have the foresight to build the benchwork in modules for easy disassembly, so eventually everything had to be scrapped when I moved again. I chalked it up to a valuable lesson about "biting off more than you can chew" or "bigger is not necessarily better," ad infinitum.

I decided that if my next layout were going to be a big one, it would be by way of joining a model railroad club, which I did. As time went by however, I became impressed with the quality of craftmanship of several of the small N scale layouts that had been donated to the club. They made me think back to my earlier small layouts that I actually did manage to finish and remember how much fun I had with them. My interest in small layouts became

piqued when I also remembered that John Allen's "Gorre & Daphetid," was originally built in a space a little less than 4'×8'.

The Indian Valley Railroad (IVRR): Such was a particular layout that had been anonymously donated to the Roseville Roundhouse Model Railroad Association (RRMRA) in Dry Creek, California. The layout is housed in what I call a "Showcase" display and is only 20"×50". It does, however, manage to pack a lot of fun and interest in a very diminutive space. I thought the layout would be an excellent example of how "good things come in small packages."

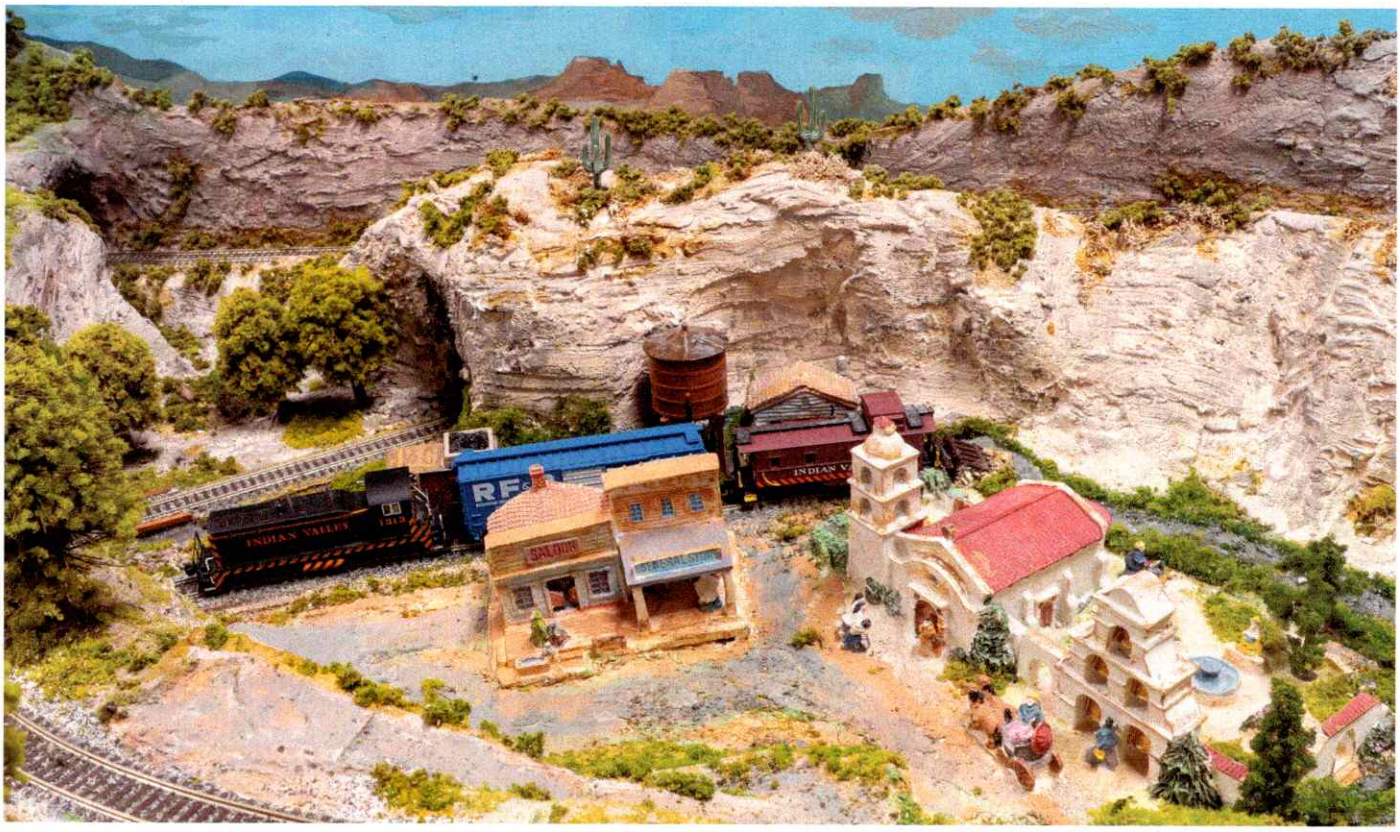
Whenever I visit a club or a home layout, I always find the experience more enjoyable if the railroad has a theme or "backstory." Whether the railroad is freelanced or modeled after a specific prototype or location, the layout can still tell any story that the imagination can dream up. Many fictitious model railroads have some origin based on a real railroad or location, but take on their own history usually after some catastrophic event has befallen the "real thing." The layout and trains themselves should tell a good part of the story, but I think most owners/operators still enjoy a little embellishment now and then with visitors.



Power pack: The mini-mine corner lifts out easily to gain access to the transformer/power pack, turnout switch (1), and power switch that are all cleverly hidden below.

And so it was with the Indian Valley Railroad.

The real Indian Valley is located in north central California in Plumas County. The area was once the largest



Mission Viejo (vee-ā-ho): Another village in Indian Valley that is still frequented by the IVRR is Mission Viejo. The "Old Mission" has become a popular photographers spot due to the surrounding hills that have been scarred by years of mining and is a stark contrast to lush Angels Hollow. IVRR #1313 regularly stops at the Mission, bringing supplies to the Saloon and General Store.

Excursion Train: The Angels Hollow excursion train is very popular with tourists. The trip takes visitors deep into the Hollow which is supposed to be frequented by the "souls" that were lost in the "Great Flood of '08" that swept through the valley (thus the name "Angels Hollow.")

Micro-vineyard: Quite a few "boutique" businesses dot the countryside. Due to the "unique" climate of Indian Valley, this area grows a variant of grape found nowhere else, making their product highly sought after.

producer of raw copper in California. The original Indian Valley Railroad (IVRR) was built to service the mines in the area and was just over twenty-one miles long, connecting with the Western Pacific Railroad in Paxton, California. It was however, listed as a common carrier and did provide limited passenger and freight service. After the mines were played out, most of the towns along the route packed up and left, which in turn forced the IVRR to shut down. There are some old documents that suggest the IVRR Co. was acquired by the Western Pacific RR

The Backstory: That's pretty much where the real IVRR ends and the fictitious one begins. In the current version, the IVRR continued to operate by servicing the few pockets of villages, small businesses and industries that remained and managed to survive. Even though it is a relatively small railroad, it is nonetheless still an integral part of the prosperity that the Indian Valley area currently enjoys by providing transportation of goods, and now tourism, in and out of the valley.

The company owns two diesel locomotives: an EMD NW2, and a beefed up Plymouth MD, as well as a gas-electric railcar. Both of the locomotives can easily negotiate the narrow passes in the valley, although the "Doodlebug" has to be extra cautious going around the tight curves in Angels Hollow. The railroad also now owns a fleet of extensively restored "Old Time" steam engines and passenger cars that it employs for "excursion" trips around the valley.

Mission Viejo: Many, many years ago, rare deposits of high grade kaolinite were discovered and mined in Indian Valley. The mineral was transported by the IVRR to the Paxton

IVRR Plymouth: Slowly making its way through Angels Hollow, IVRR's beefy Plymouth MD is perfect for the tight trackage found in the valley, which was originally used by ore cars coming down from the copper mines. Another local business, the "GLAD IM A BEAN" pottery shop, with its two kilns, sells most of its very expensive, custom items to tourists. The name is a take on Gladding McBean, a leading supplier of clay products.

interchange and then to various clay pipe, roof tile, and pottery manufacturers in California by the Western Pacific. Even though the countryside was stripped bare and abandoned many years ago, the land still remains gouged and scarred with sparse vegetation. The tiny hamlet of Mission Viejo, which lies below the cliffs, is now a popular photographers destination, hoping to capture the "starkness" of the land.

The "Old Mission" is also a big tourist attraction and still has services on Sundays. Occasionally, a Class 1 express will pass through the valley floor on its way to the "big cities," but other than the tourist filled weekends and Friday nights at the saloon, it's a pretty quiet place.

Angels Hollow and the Great Flood of '08: At the other end of the valley lies Angels Hollow. The hollow is lush with vegetation, tall timber, and a dark history. At one time, several ore trains ran through the hollow to and from the copper mines, requiring multiple tunnels being dug on supposed "hallowed" ground. Like Mt. Overlook, the hollow usually has weather unlike the rest of the valley, being almost always cloudy, damp, and cold.

It is said that most of the residents of the hollow were lost when they were swept away in the Great Flood of '08 when the Indian Lake dam suddenly collapsed after days of relentless rain, flooding the valley.

The next day, a crew of IVRR Co. workers were trapped when a tunnel they were digging collapsed after it became flooded. Unfortunately, all of the crew perished before they could be rescued.

As the legend goes, when the wreckage was finally cleared several months later, the trapped "spirits" fled into the hollow. It is said that on dark, moonless nights, these "souls" and those lost in the flood still roam the valley. The locals that did survive say that a few of the recovered bodies washed up on the banks of what they now call "Dead Man's Creek," which always runs with dark water.

After a while, some of the locals began telling stories about walking alone at night and being pushed or grabbed, of hearing strange noises in the trees, and of glowing figures or dark shadows on the path ahead. After a while, some of the locals took to calling these specters "Angels," thus, the hollow became Angels Hollow.

Folks in nearby San Francisco and Sacramento began hearing stories about Indian Valley and its "unique" attractions and, as word of these tales spread, thrill-seekers and paranormal "researchers" from all over the country flocked to Indian Valley hoping to have and document similar "supernatural" encounters.

The hollow also supports the only micro-industry that still operates deep in the valley: the "GLAD IM A BEAN" pottery works and supplies. The name is a take on Gladding, McBean, one of the largest clay product suppliers in the country. The workers at the wood fired kilns stay on the job until evening, by which time they make sure they are out of the hollow.

The Overlook Lodge: And then there's Mount Overlook and the Overlook Lodge. This is the highest point on the railroad and easily the most popular destination in the area with the "Encounters of the Weird Kind" crowd. The lodge is famous for its "non-corporeal" residents that "interact" with

The Back Country: The always busy IVRR NW2 is on its way to service the "Back Country," while below, a Union Pacific Overland passes through the valley on its way to Sacramento and San Francisco.

The Pass: Steam trains can be seen hard at work throughout the valley. The powerful little engines can negotiate narrow cuts like "The Pass" without much difficulty.

visitors regularly. The old time excursion steamer makes the trip up the hill, hauling only one passenger car to the lodge every couple of days. The Overlook's "permanent" custodian/manager, Jack, always greets the adventurous guests at the platform and escorts them to the lodge where he locks them in for two nights of "spiritual survival."

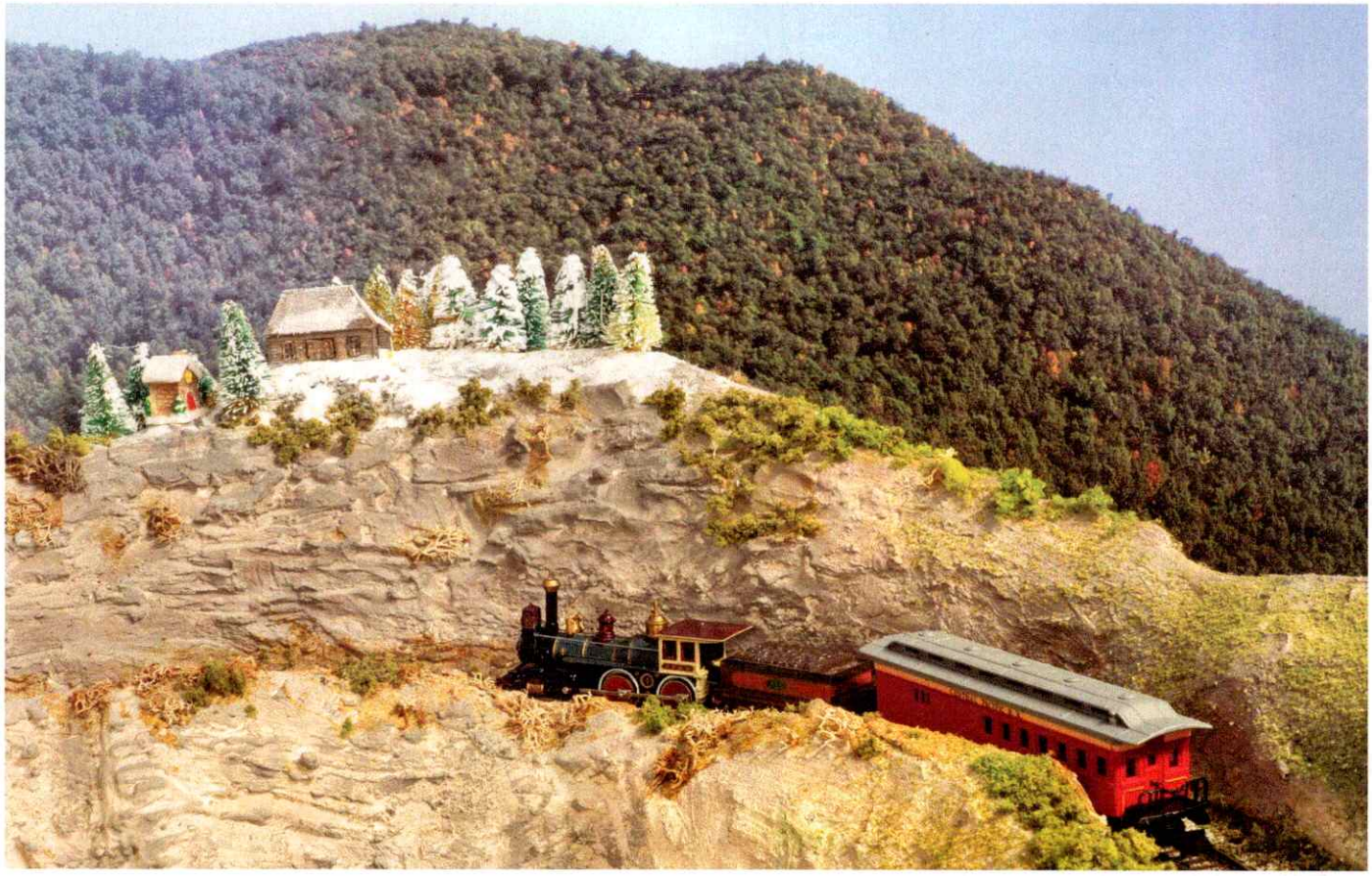
Another curiosity is the unexplained geometeorological phenomena; Mt. Overlook receives snowfall all year around, even in the middle of the summer when the surrounding forests are green.

Jurassic Valley: Several large dinosaur fossils have recently been discovered in the valley, making it the new "Jurassic Valley" with the academic set. The skeleton of a T. rex can be seen below the surface in the lower left corner of the layout.

Business: A fleet of fully restored "Old Timer" locomotives now criss-cross the valley, transporting visitors to various points of interest. The excursion trains are all owned and operated by the IVRR Co. and are another major attraction, which draws many train aficionados to the valley just to ride and photograph them.

The collateral tourist dollars generated by the IVRR for the local merchants is substantial and has drawn the attention of some large investors hoping to develop the valley into a major theme park.

Although the Indian Valley Railroad still makes its daily rounds to the local industries and businesses with its two diesels, steam engines from other companies also occasionally work the valley, which has become a railfanning attraction, as there are many locations throughout the valley to capture steam



The Overlook: Another popular destination, the Overlook Lodge, is famous for its "non-corporeal residents" (ghosts). The old steamer delivers a passenger car to the lodge every couple of days where the "permanent" custodian/manager Jack greets the adventurous guests and escorts them to the lodge, locking them in for two nights.

power still hard at work.

The IVRR also operates a gas-electric powered railcar that it purchased from Santa Fe, which it uses to shuttle locals and visitors around the valley. Some folks come all the way to Indian Valley just to ride the classic "Doodlebug."

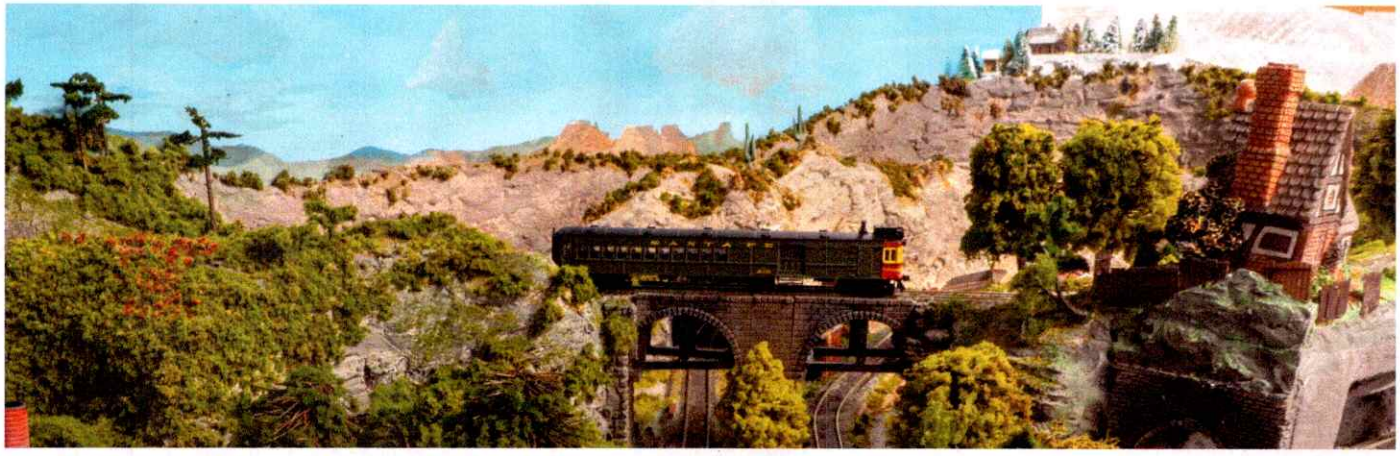
The Layout: Construction is a simple open grid with cross joists, mostly 1"×2". The frame measures twenty-inches deep by fifty-inches long. The base is plywood cookie-cutter, while the mountains and hills are plaster cloth, hard-shell over wire screen on wood forms. Elevated track is supported by risers. Landscaping is mostly commercial products, while some of the buildings, like the winery shed and the mini-tipple, appear to be scratchbuilt. The hardboard backdrop has cutouts, allowing access to the track under the mountains. The lower parts of the plexiglass panels are painted to match the contours of the landscape and have viewing cutouts. The base of the layout has no legs, although permanent ones could be added without too much difficulty.

Underhill: A freight train creeps along the tunnel that passes under Mt. Overlook and eventually out of the valley. Many transient train crews say they are glad to leave because of the uneasy feeling they get when traveling through the valley.

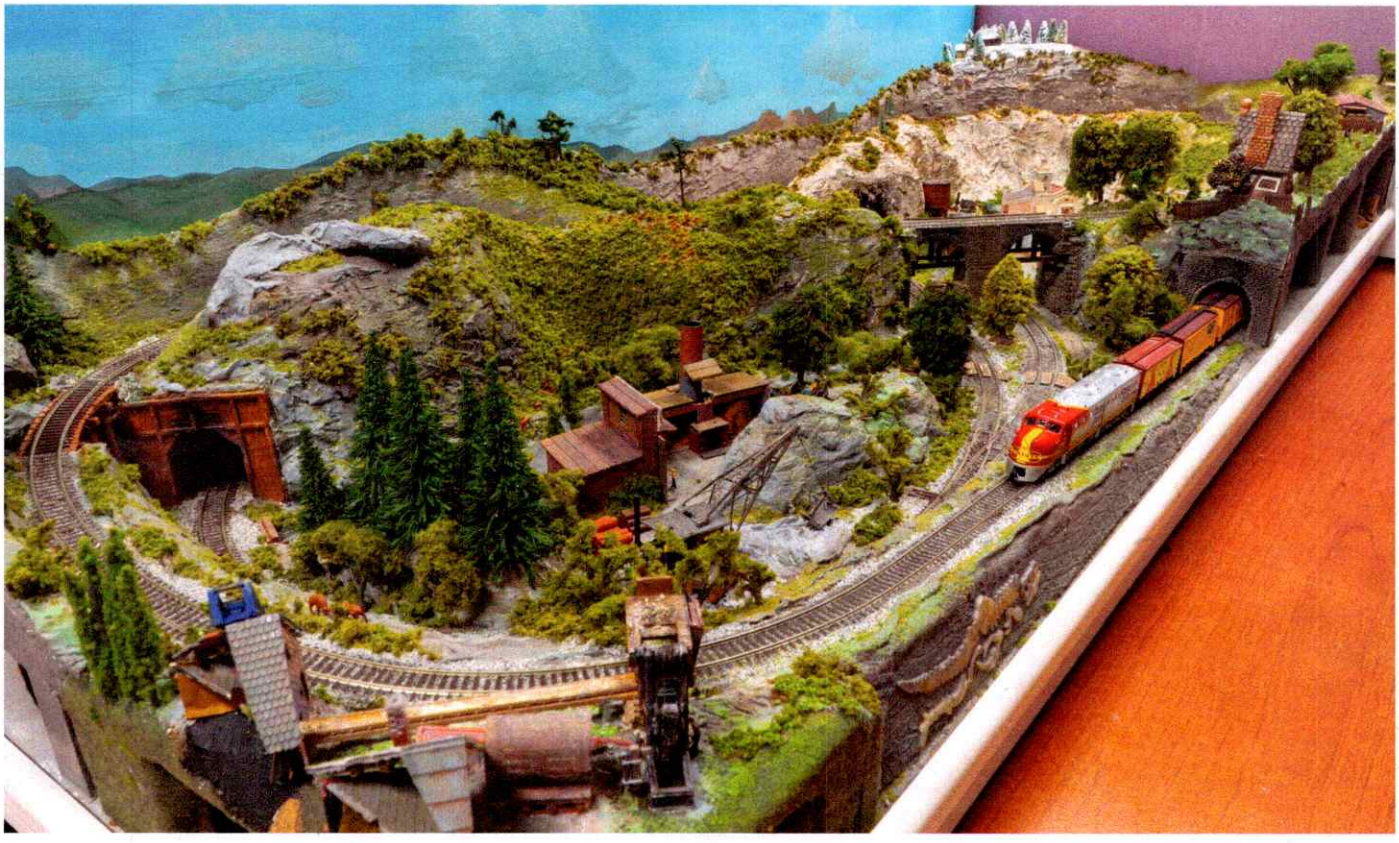
The code 55 track is all ballasted and is basically a modified figure eight with a center crossover and spur into Mission Viejo. The spur is accessed by the only turnout on the layout.

The DC Life-Like transformer/power-pack and switch control are accessed by carefully removing the left lower corner of the layout where the "mini-mine" is located. Trains can be run with the plexiglass panels in place as the controller can be accessed through cutouts in the panels. The panels slide into grooves in the four painted corner posts and the top is secured with several clips. The whole layout is very light and fits through doorways pretty easily.

Running trains: Most of the locomotives and rolling stock are short wheelbase units that can negotiate the tight curves on the layout, although some longer units have been "squeezed" through the passes occasionally. Several club members were glad to have the opportunity to run their short trains that would normally



The Doodlebug: A self-propelled gas-electric railcar, the Doodlebug, is perfect for shuttling locals and tourists around Indian Valley. The Doodlebug is the only regularly scheduled passenger service in the valley.



Santa Fe: A Santa Fe freight rumbles up the grade past Angels Hollow and out of the valley. Most of the through freights connect with the Western Pacific mainline in Paxton.

spend most of their time in the passing sidings on the "big" N layout. On the Indian Valley layout, they could run their trains uninterrupted by fast hotshots or expresses.

Although I'm a big fan of operations, sometimes it's enjoyable just to sit back, relax, and just watch trains go around the layout. A small layout like the IVRR can be easily moved from room to room and placed on almost any flat surface like a table or counter top and run any time.

It would also make an ideal travel layout for clubs that don't want to store a modular layout. It can also be easily transported in the back of an SUV.

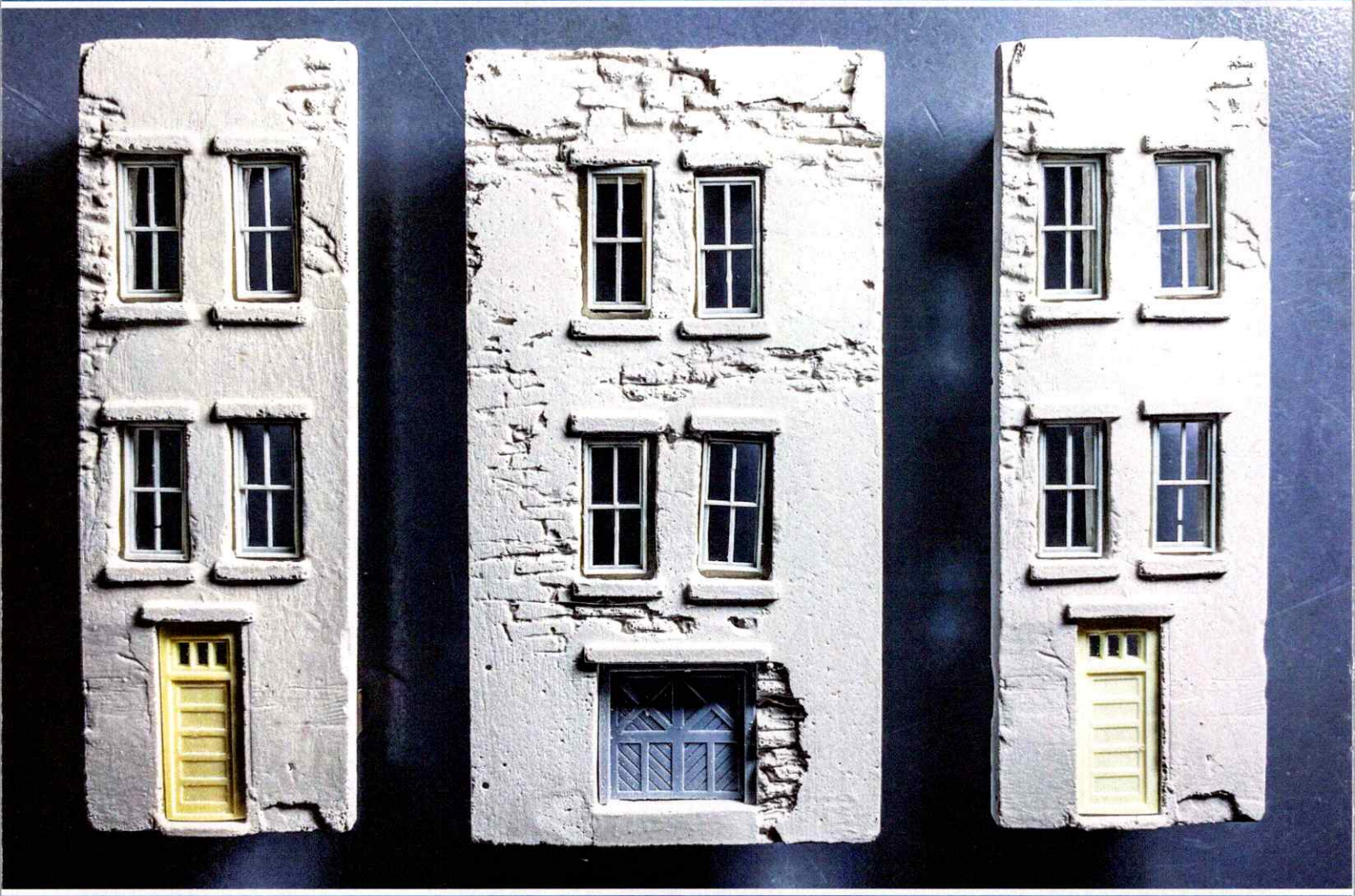
Donations: The RRMRA receives quite a few layouts of all scales and sizes, which unfortunately, we eventually run out of space to store, so they are auctioned off. Half of all of the RRMRA's auction proceeds are donated to the Shriners Hospital for Children in Sacramento.

Sayonara: And so the Indian Valley Railroad has gone on to a far, far, better place. Now, if you want to spend a weekend at the Overlook Lodge, you'll have to take the train leaving on platform 10½, follow the second star on the right and keep on till morning.

Anecdote: The popular children's TV show, "*Shining Time Station*" took place on the Indian Valley Railroad.

This article is dedicated to long time RRMRA club member/treasurer John Bowles. He will be missed.

IN PURSUIT OF WOW



PART 18 – CREATING HYDROCALL WALLS WITH WINDOWS & DOORS

by **Dennis Machlica**

Photo 1: Generic window walls created to use with kit-bashed or scratch-built buildings.

In Part 17 of the WOW Series (*N-Scale Magazine*, September/October 2022), we kit-bashed and painted a Design Preservation Models Reed Books Kit using our own cast Hydrocal walls that were large enough to add our desired advertising graphics.

In kit-bashing that kit, I used previously cast Hydrocal rear walls that had window and door cutouts in place that matched the side walls (***Photo 2***).

In this installment, we will take a look at how we can simply and creatively design and cast such walls for our own use. And by making casting masters of our finished walls, we can cast multiple copies of these walls and have them ready for use on many structures down the road. Hence, I refer to these walls as "generic" wall castings.

The inherent problem in creating a wall with a lot of windows is the difficulty in cutting out all of those window openings and getting them to line up perfectly and straight both vertically and horizontally. But with this technique, we can tackle all of these issues, and do it without using a ruler to measure anything!

Let's begin by building a jig.

Using a jig is an easy way to execute a task multiple times over and over and achieving the same precise result. So the time spent in making a jig pays for itself many times over.

Since we are creating a wall of stucco and stone, we should use window castings appropriate for such masonry walls. ***Photo 3*** shows several window castings available from both Tichy and Grandt Line that we can use. In this project, I went with Grandt Line part number 8013 since it is less industrial looking than all the other choices. This

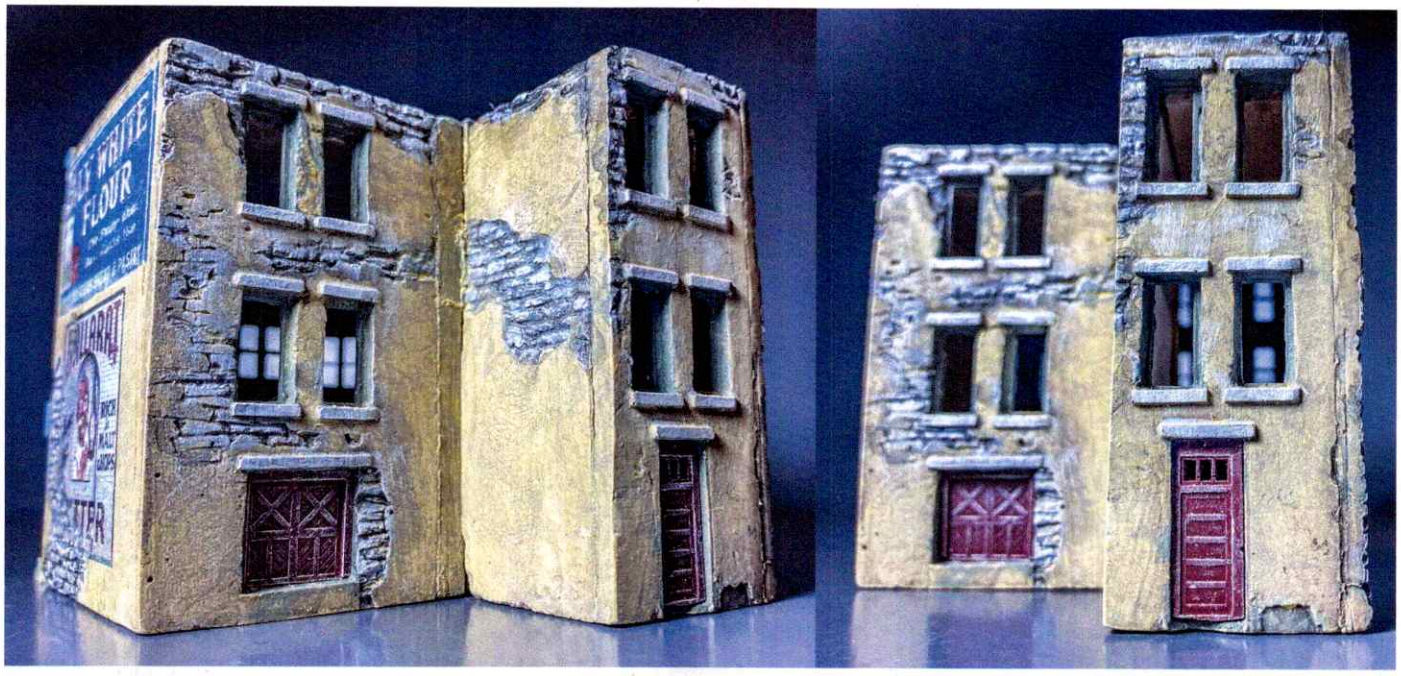


Photo 2: Our window walls used in our kitbash featured in Part 17.

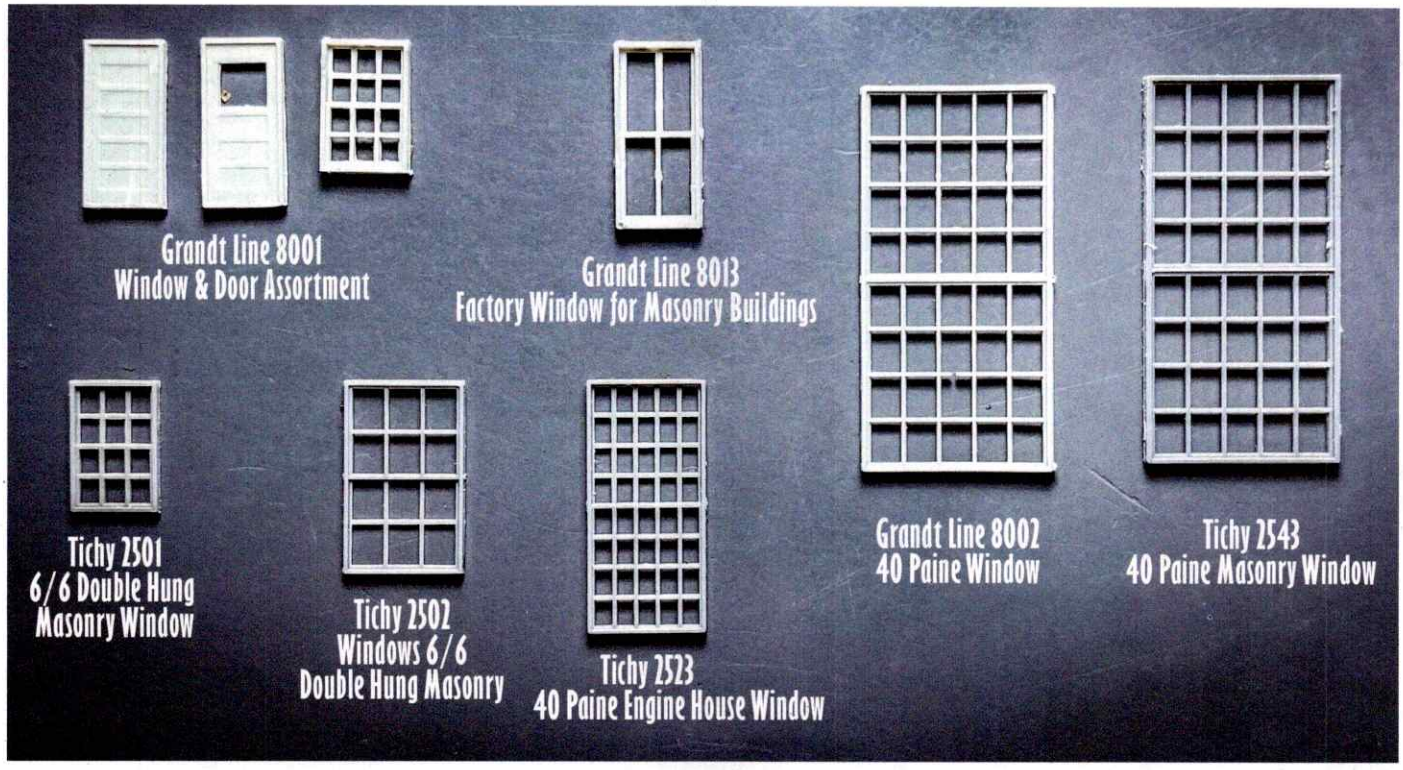


Photo 3: Window casting choices designed for masonry buildings.

is one of my most preferred window choices since it can be used for both residential and commercial structures as well.

Our first step in building our window jig is determining the height of our window cutouts. ***Photo 4*** shows how simple it is using a Northwest Short Line Chopper, the tool we will put to use for cutting all our window spacers. Once we have this figured out, we can go ahead and cut a few sample pieces in strip styrene.

The next and a most important step is to confirm that we have the right measurement for our spacers. By fitting these around a couple of window castings, this is easily accomplished (***Photo 5***).

Once we are satisfied, we can go ahead and cut several spacers to build our jig. And don't be shy here and try to skimp on the number of parts cut – if you don't make enough, you will never be able to go back and cut more with the exact same fit. It is good to have a stock of these so you can build multiple jigs with different window spacings or for jigs for wider structures down the road (***Photo 6***).

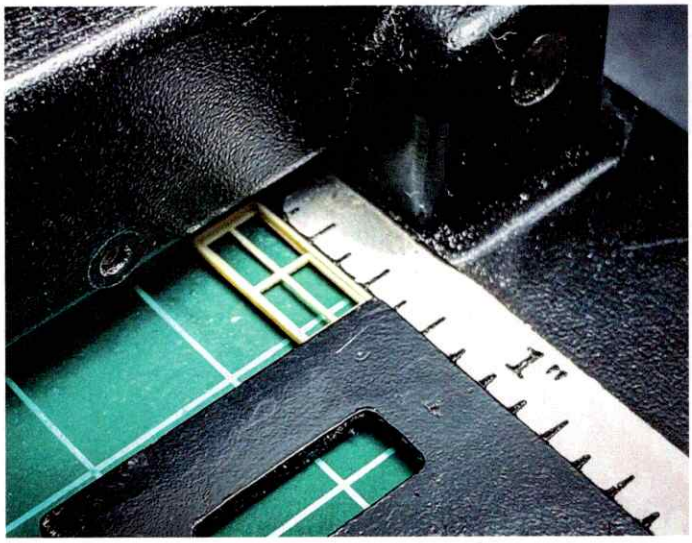


Photo 4: Measuring the size of our window cutouts for our window jig.

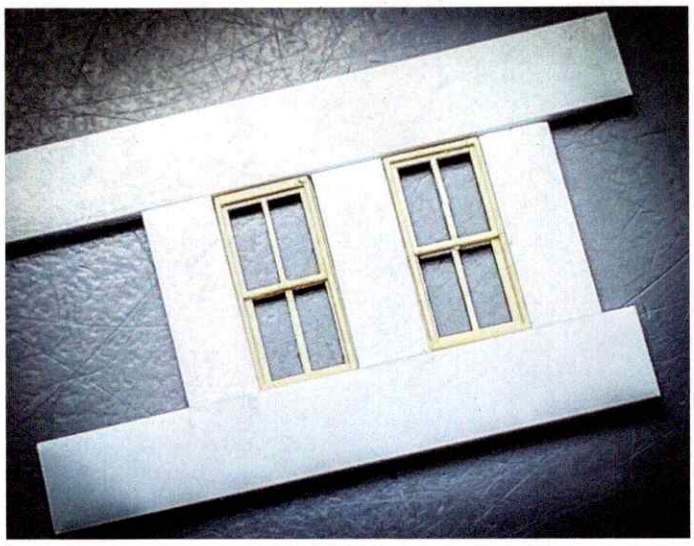


Photo 5: After cutting a few window "spacers" you can check the fit.

In my arsenal of tools, I have both a metal triangle and a thin-beam machinists square from Micro-Mark (***Photo 7***). These are especially useful since styrene cement will not glue these tools to my jig accidentally if styrene cement comes in contact with them. While I have had the triangle for many years, working in the advertising and graphic design industries, one can be had from art supply stores or *Amazon.com* (search metal drafting triangle).

Using a metal T-Square and my triangle, I prepared to assemble my jig over a piece of acrylic sheet (Plexiglass) with an accurate straight edge (***Photos 8 & 9***). Once again, the acrylic is not affected by styrene cement, so there is no danger of our jig being glued down accidentally. Be sure to start with no less than two or three spacer strips at the left end of the jig, since the first one will be used as

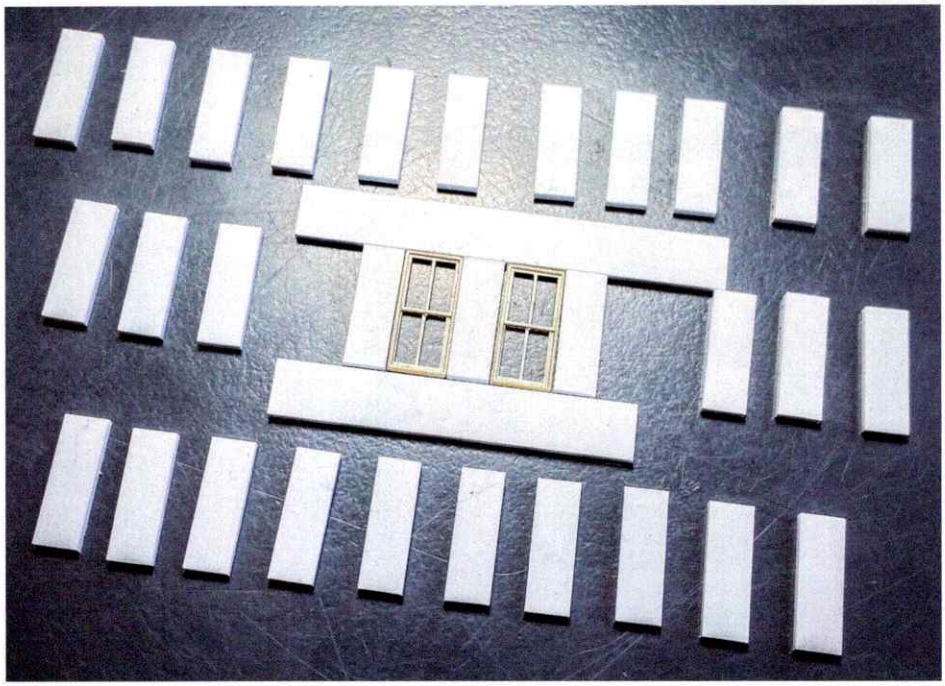


Photo 6: Once we know we have the proper spacing, multiple pieces can be cut.

Photo 7: A metal triangle & thin beam machinists square are useful tools for a project such as this.

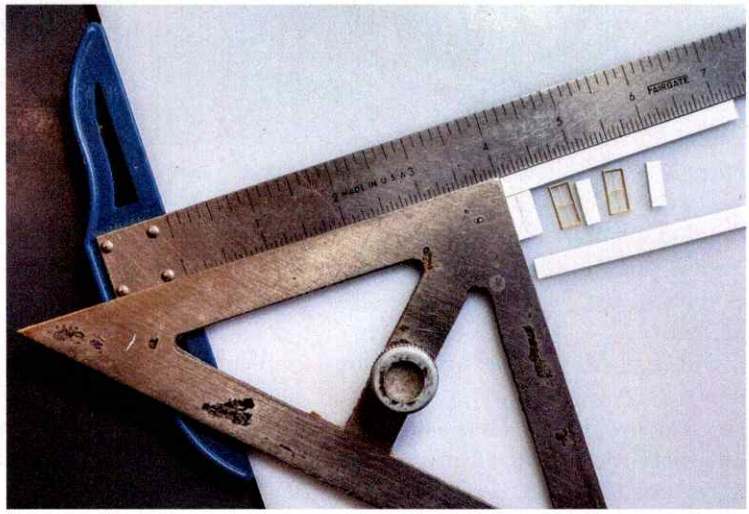


Photo 8: Here we are preparing to glue up a window scribing jig.

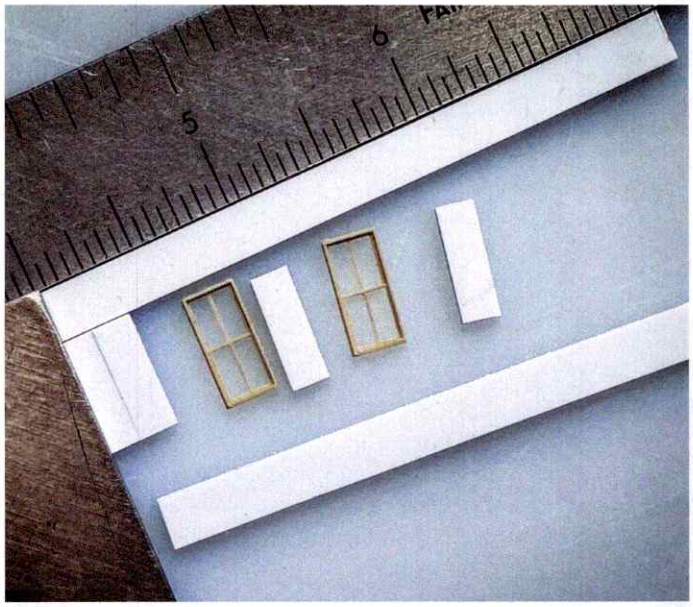


Photo 9: Our window jig begins to go together.

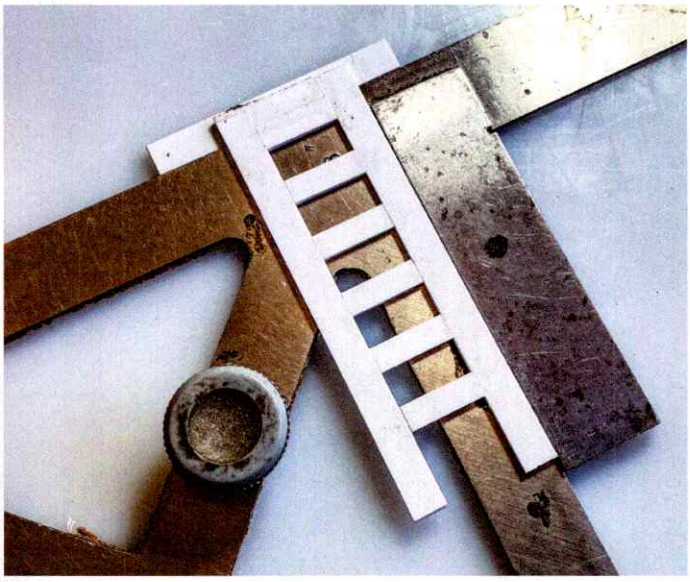


Photo 10: Once our jig is complete, we place a long, verticle cross beam to create a T-Square.

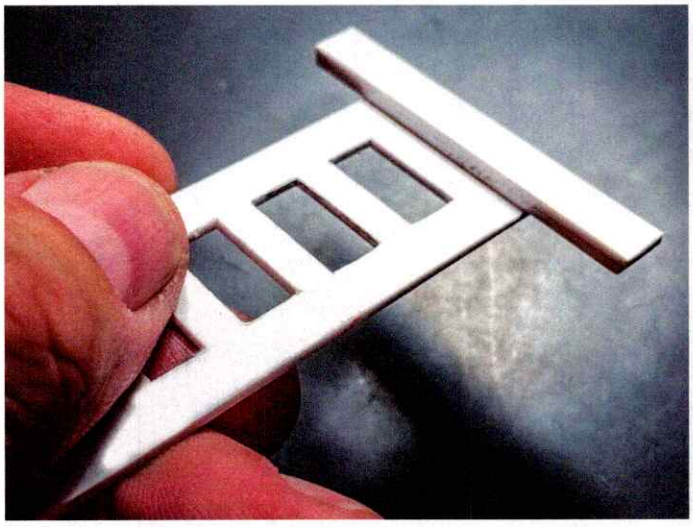


Photo 11: Here we see our window T-Square from the under side.

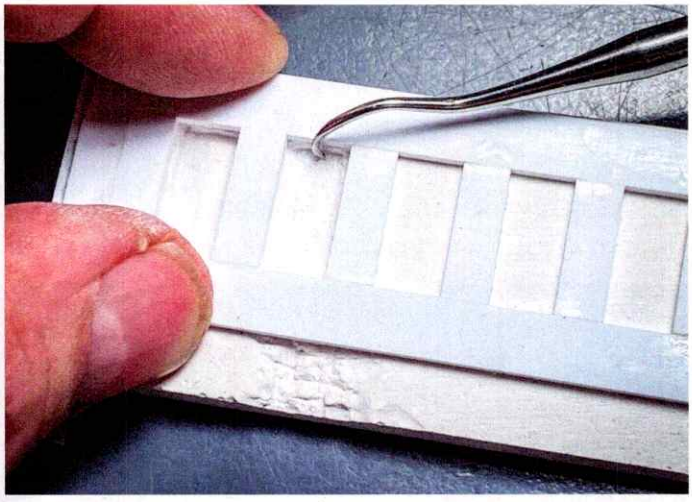


Photo 12: Using our T-square to scribe window cutouts in a hydrocal wall casting.

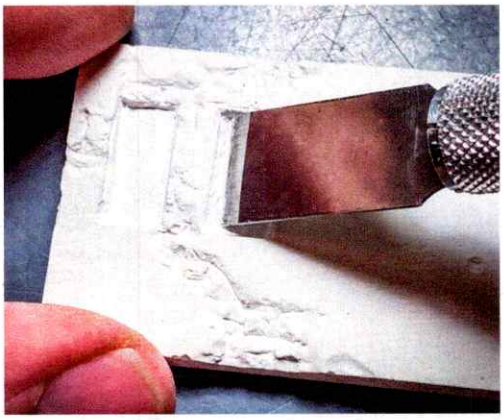


Photo 13: Using a chisel blade, we can now scrape out our window opening.

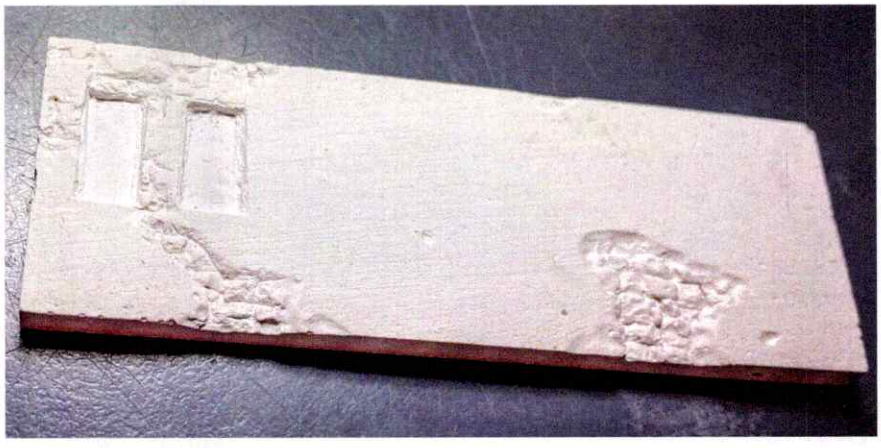


Photo 14: Here is our first wall with a couple of window cutouts prepared.

part of the vertical cross beam on our jig. The second one is actually the spacer that will determine the distance from the wall edge to the first window. If a wider space between the wall edge and first window is desired, use two, three or more additional spacers here.

In building your jig from left to right, you will use an actual window casting to measure the width of each window opening, so be cautious to not let the window casting get glued in

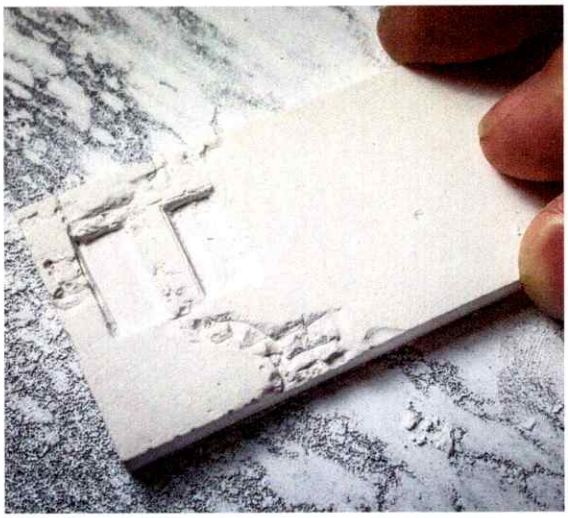


Photo 15: At this point we can sand the back of our wall perfectly flat in the correct thickness we want it to be.

Photo 16: With a miniature drill bit in a power tool, we can carefully cut our window openings.

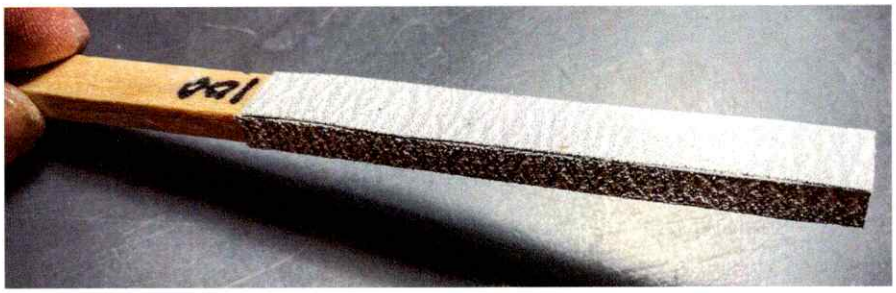


Photo 17: Using a piece of Balsa or Basswood, a 4-sided sanding stick can be made.

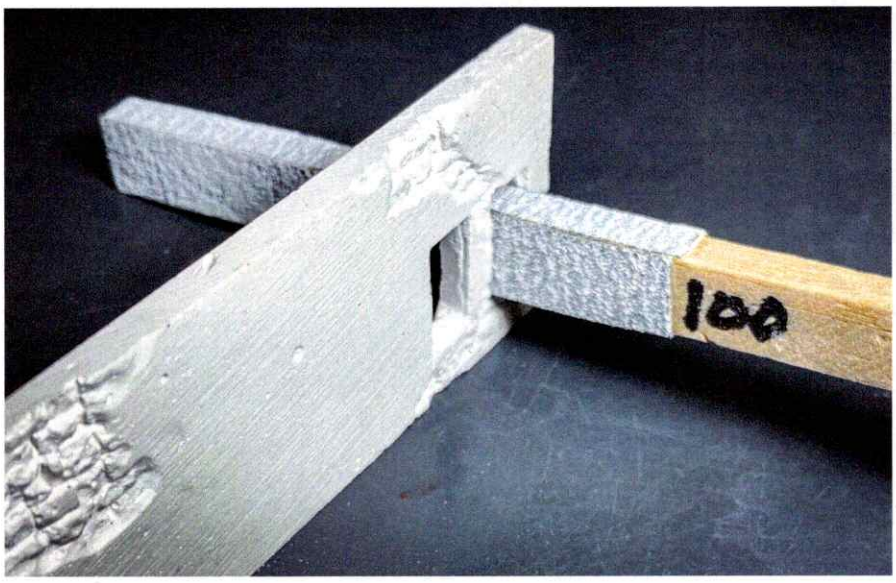


Photo 18: Our sanding stick makes easy work of squaring-up our window cut-outs.

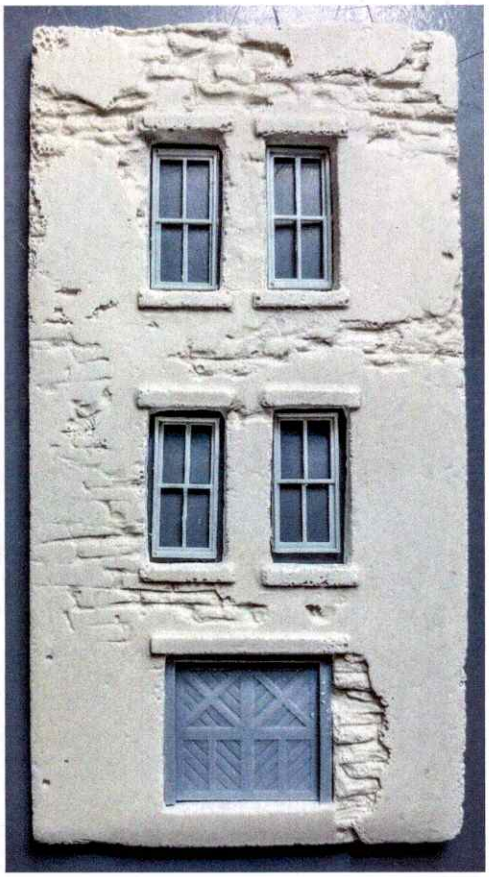


Photo 19: Looking at different examples, we can see a wall casting with window cutouts perfectly lined up both vertically and horizontally.

place on the jig – use minimal styrene cement to tack each spacer in place momentarily, then remove the casting before adding more styrene cement to the joint. Add only one spacer at a time, and let each joint cure completely before moving on to the next piece – don't try lining up all the spacers and window castings at once and then glue in a single action to save time. You will pay a nasty price if you do!

Once our window jig is finished and completely cured, we can add the vertical crossbeam to the left side and turn it into a T-Square (***Photo 10***). ***Photo 11*** shows our window jig from the underside to see what it should look like if we assemble it correctly.

Putting our jig to use.

After all that preparation, we can now put our jig to use in scribing our first window cutouts. By placing our jig against the left side of our Hydrocal wall and carefully holding it in place, we can use a dental tool to mark the placement of each window (***Photo 12***).

Once we complete the task of

Photo 20: Holding our casting up to the light we can see how the window casting actually fits.

Photo 21: With our prepared casting block covered with painter's tape, we can "trace" the casting using a number 11 blade.

Photo 23: Voila! A Chopper makes easy work of trimming off our ragged bristle tips!

Photo 22: Two disposable brush choices showing rather ragged edges to the bristles.

Photo 24: Before and after examples of our disposable brushes.

carving in each window desired, a chisel blade can be used to dig out the opening (***Photo 13***). But don't try to dig it out completely – you are sure to crack the wall casting if you do. Simply flatten the window recess to the depth of the scribed lines. ***Photo 14*** shows what your wall casting should look like at this point.

Now is a good time to be sure the back of the wall casting is perfectly flat if not done so already (***Photo 15***). We can then use a miniature drill bit in a Dremel or similar brand tool to drill out the center of each window (***Photo 16***). Before drilling, place the casting against a piece of flat plywood

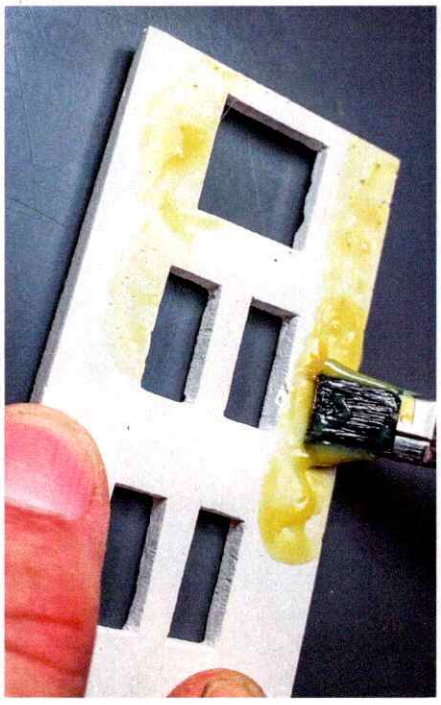


Photo 25: Carefully covering the back of our window casting with Weldwood Contact Cement.

Photo 26: Spreading Contact Cement over the casting block.

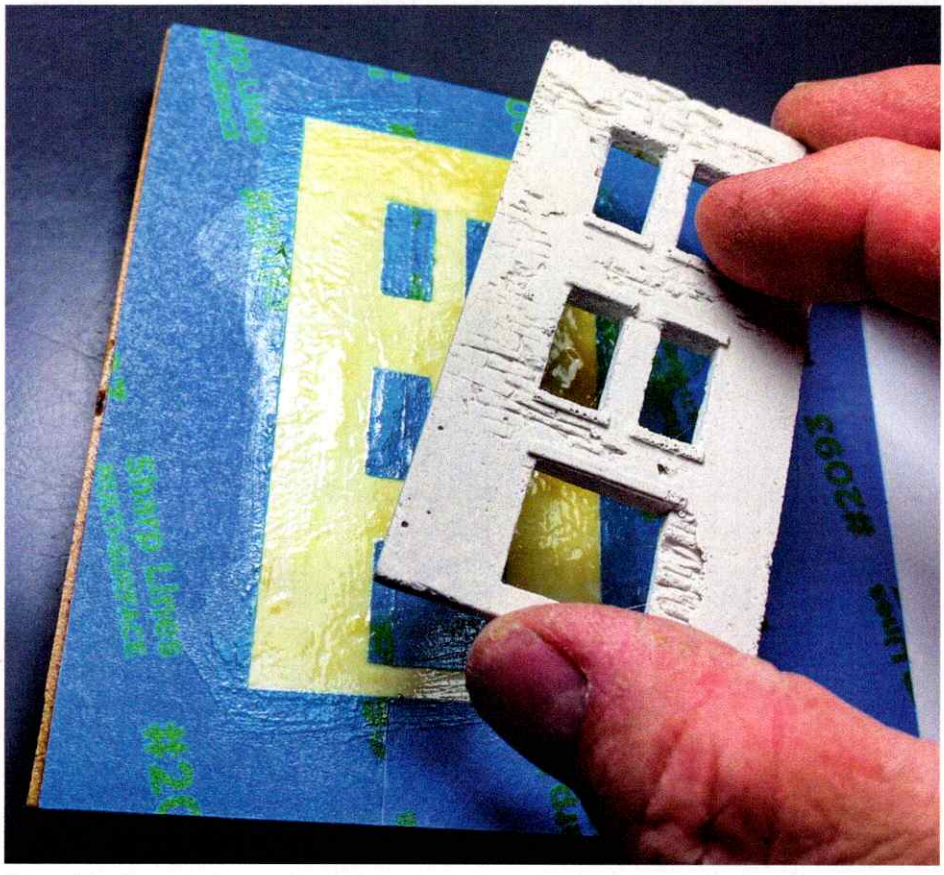


Photo 27: Once our Contact Cement is dry, we can carefully position our casting down on to the casting block in perfect registration.

or similar and be sure to not let the drill bit wander and cut into our wall beyond the appropriate cut out. A drill press is helpful here to prevent such accidents. And do not try to drill right up against the window edge. We are simply drilling an opening that will allow an X-Acto knife to be used to carve a larger hole.

Once we enlarge each hole in the wall casting, we can use a 4-sided sanding stick to file away the opening to the precise measurement we desire. A simple sanding stick can be made by gluing 100 grit sandpaper to each of the four sides of a stick that is slightly smaller than the width and height of the window openings (***Photo 17***). Our sanding stick will assure that each corner of our window cutouts will be exactly 90 degrees and there will be no over-cuts like you can easily get when using a flat file on each individual side of the opening (***Photo 18***).

Looking at another example, ***Photo 19*** shows a multi-story wall with window cutouts that are perfectly lined up both vertically and horizontally with each other. Holding the wall casting up to the light, you can see how each window fits its opening, and how light can shine through around each window casting (***Photo 20***). You will notice that some openings may be slightly wider or taller than the others, but this is not a concern if the cutouts are prepared carefully. A later step will help hide those marginal differences.

Gluing down our Hydrocal wall casting.

If not already done so, a casting block needs to be prepared – sheet styrene laminated to a piece of ½" plywood upon

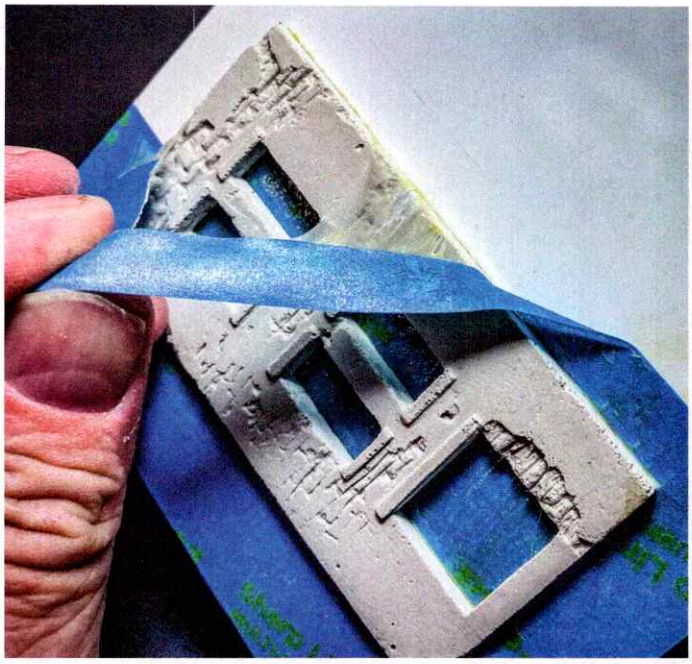


Photo 28: Peeling off the masking tape around our glued down casting reveals a perfectly clean edge without any exposed glue.

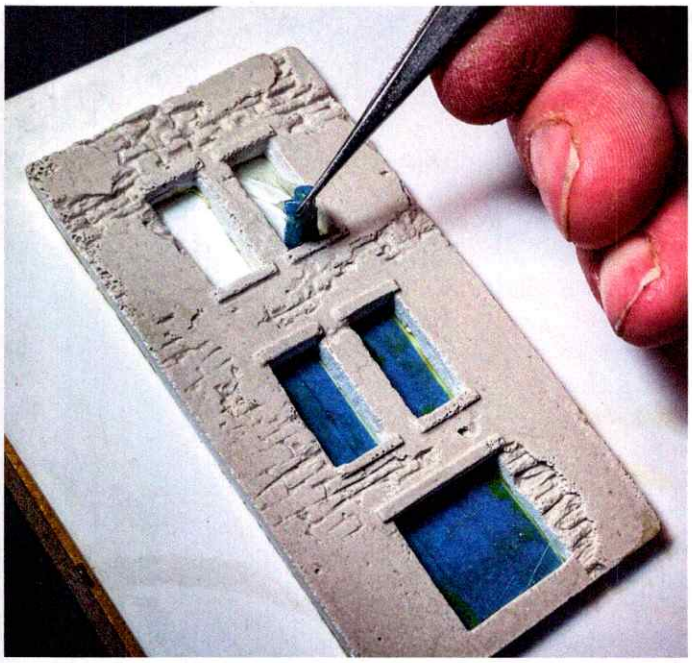


Photo 29: A pair of tweezers makes easy work of scraping and grabbing the tape out of out window cutouts.

Photo 30: Strip styrene will be used to create a shoulder inside each window cutout.

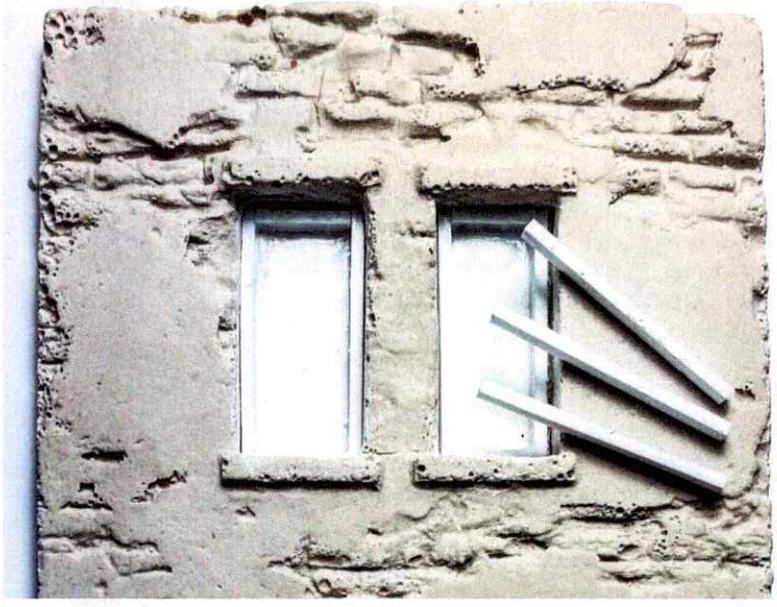


Photo 31: Here we see the shoulders built up inside each window cutout.

which our wall casting will be glued (***Photo 21***). This is covered with blue painter's tape as seen in ***Photo 21***. After setting and holding the casting in place, carefully cut the tape using a number 11 blade, tracing the wall casting as you go. When finished, simply remove the tape behind the casting to reveal the glue area behind the casting.

Applying Weldwood Contact Cement to glue down our Hydrocal wall casting requires the use of disposable brushes, two which are commonly available from woodworking stores or *Amazon.com* (***Photo 22***). To the left is a "Chinese Bristle" brush, and on the right an "Acid" Brush, both which are reasonably priced and expected to be used only once. But both have very irregular bristle lengths which are not conducive to precise work. So to resolve that issue, I tried using a Northwest Short Line Chopper, and to my surprise, it worked! (***Photo 23***). ***Photo 24*** shows the before and after results of trimming both kinds of brushes.

Using the shortest bristle of an acid brush felt the most controllable for applying the gooey contact cement, so that is what I chose. ***Photo 25*** shows that acid brush at work on the back of the Hydrocal casting. Applying glue to the masked off casting block doesn't have to be as precise as on the casting, but it is important for both surfaces to be evenly coated for a good bond (***Photo 26***).

Once the contact cement is dry to the touch on both surfaces, the casting can be carefully lowered on to the casting block (***Photo 27***). And after peeling away the masking tape around the casting, you can see that

the casting was perfectly aligned and no cement is visible around the edges (*Photos 28 & 29*).

Building a shoulder inside each window cutout.

To solve the light leak issue around the window castings in each cutout, and to give each window casting a place to rest and be glued against, we will build a styrene shoulder inside each cutout. Strip styrene is perfect for the task and is the main reason for using a styrene surface for the casting block. ***Photo 30*** shows a pack of .030×.060 styrene strips that will be cut for the task.

Strips are cut to fit each window and glued in the upright position using styrene cement – that is, a width of .030" and a height of .060" as seen in ***Photo 31***. If there are hairline openings between the styrene strips and the Hydrocal edges, clay or wax can be used to fill those cavities.

Photo 32 shows the finished wall. Window and door castings are set in place (temporarily) to reveal what the final outcome will look like.

The final steps, upon removing the window and door castings, is to build a dam around what is now a Hydrocal Wall Master, seal the casting with our Smooth-On SuperSeal and pour yourself a silicone rubber mold. With that, you'll be able to have a never-ending supply wall castings available for many kit-bashes or scratch-builds for years to come!

So I hope you can all put these ideas to work and have fun with them. And don't miss the next installment: Finding all those great signage decals – and we might even create some of our own! (***Photo 33***).

If you have any ideas you want to see or share, or have any comments about this series, email *NScaleDen@gmail.com*. And to the fine gentleman, who attended my clinic at the N Scale Convention in Nashville this past June, that thanked me for this series and said my efforts were well appreciated and not in vain, please send me your phone number and mailing address – I have something to send you that you are sure to like!

In the meantime, remember to keep your flanges between the rails!

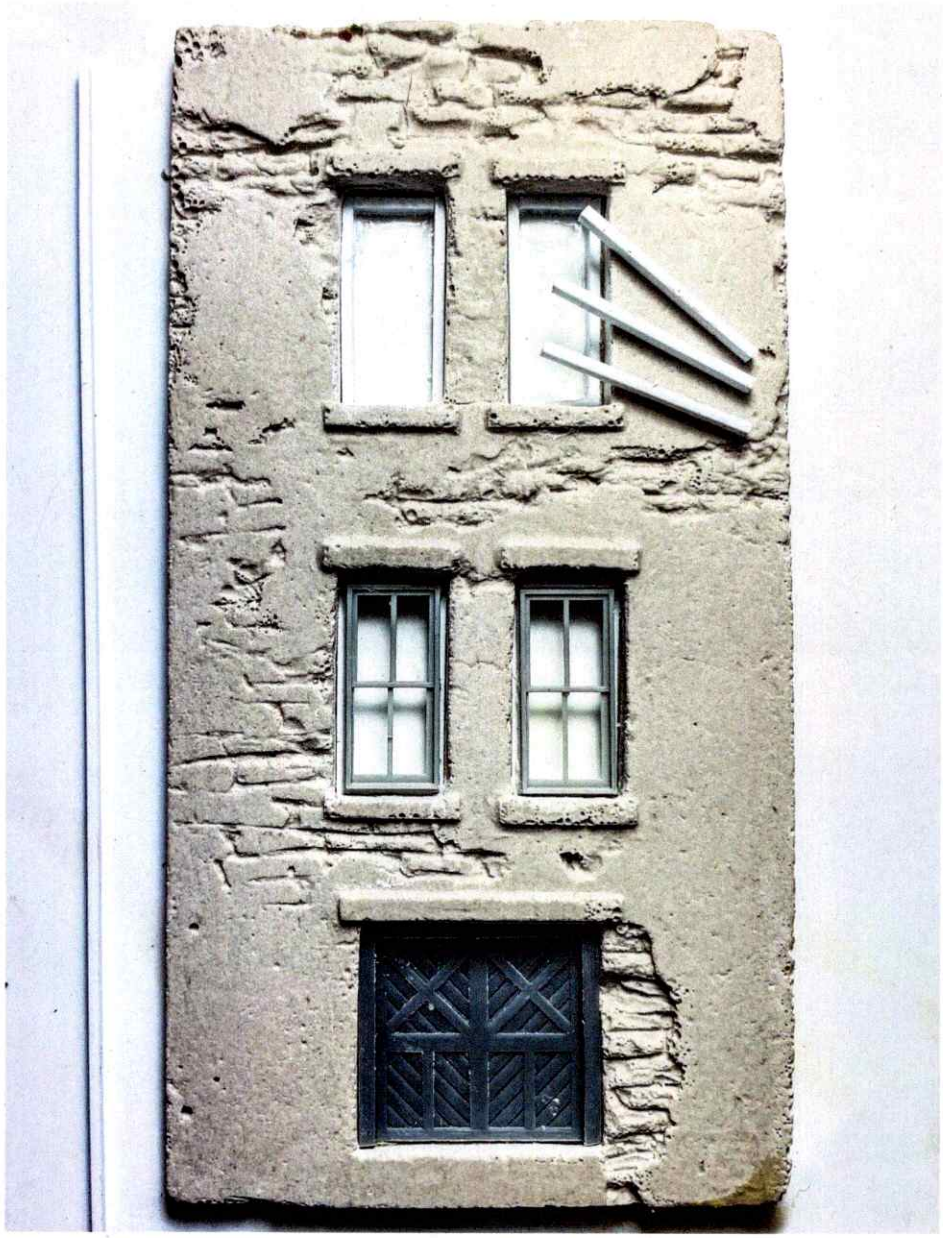


Photo 32: A look at our finished window wall showing how the styrene shoulders support our window castings perfectly flat and on the same plane with each other.

Photo 33: Finding all those great signage decals.

The Short & Nn3arrow

"Gilding the Lily" Valve Gear, DCC & Sound for a Lok-14 K-27 by **Tom Knapp, MMR#101**

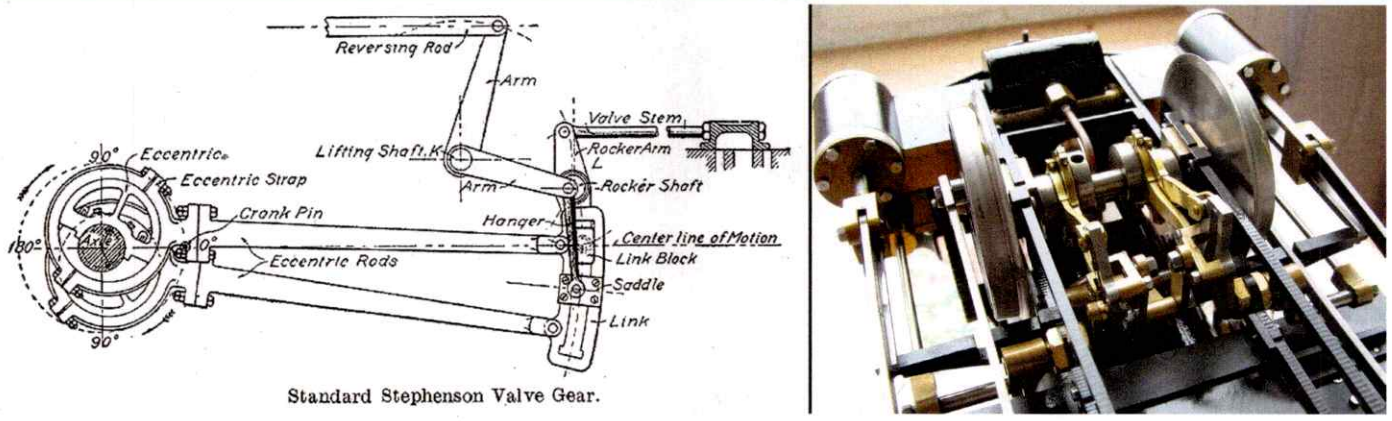


Figure 1: *Left*: A period diagram of the principal components of the Stephenson valve gear; *right*: a bottom view of a live-steam garden railway locomotive showing this valve gear arrangement.

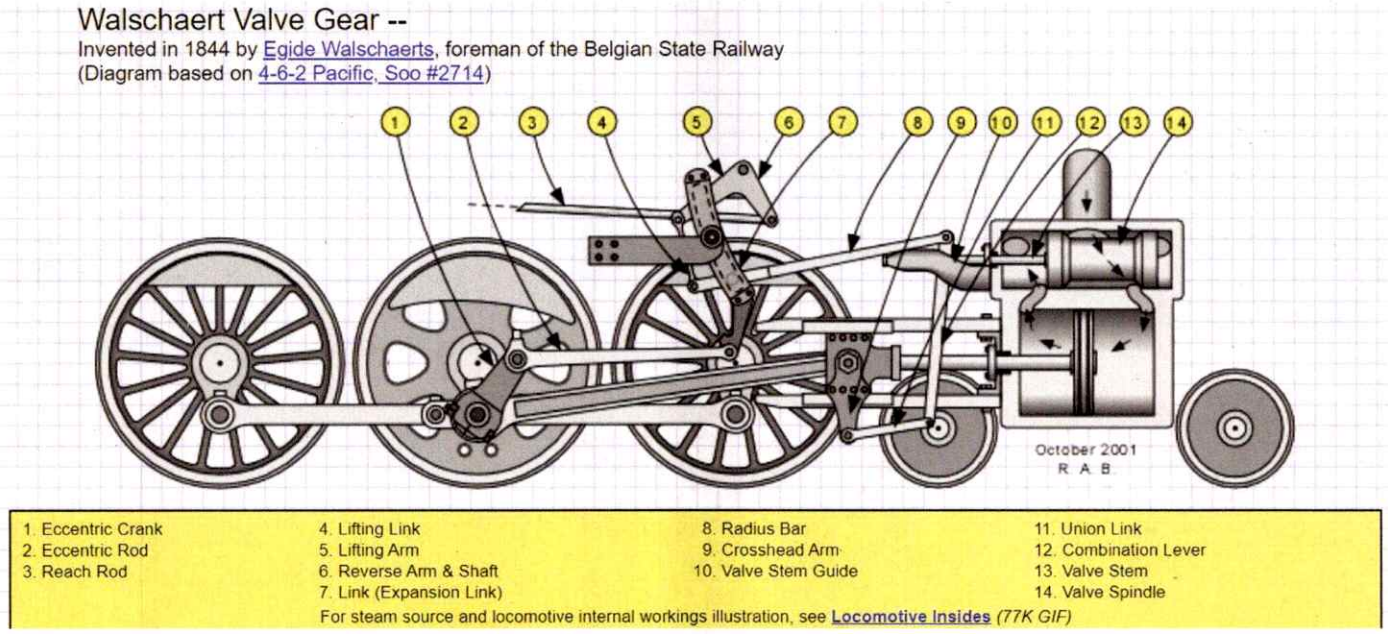


Figure 2: A diagram showing the components of a typical Walschaert valve gear arrangement on a locomotive (*courtesy Robert Booty*).

Last issue, I described the re-motoring of a brace of much-desired Lok 14 brass models of the iconic D&RGW K-27 "Mudhen". With the re-motoring and testing complete, I set aside one of the two K-27's (SN #157) as originally delivered in its distinctive red box as part of my 401K, with the exception of the new motor, but decided to upgrade the second loco (SN #82) after the motor was successfully replaced. (This model was formerly owned by Marshall Thomson, the late owner of Republic Locomotive Works, and was given to me by Marshall's son Ryan; it will have a place of honor in my collection.)

VALVE GEAR

Disclaimer: I am not an authority on steam engine mechanics, but found some incredible online and hardcopy (i.e. "book) resources. If I make mistakes in the following distillation of my findings, please do not write an embarrassing letter to the editor; e-mail me and I will follow up with an appropriate "mea culpa" in a later issue.

The power for driving "rod" steam engines comes from steam pressure moving a piston connected to the main rod back and forth in a steam cylinder. Steam enters this cylinder on either the

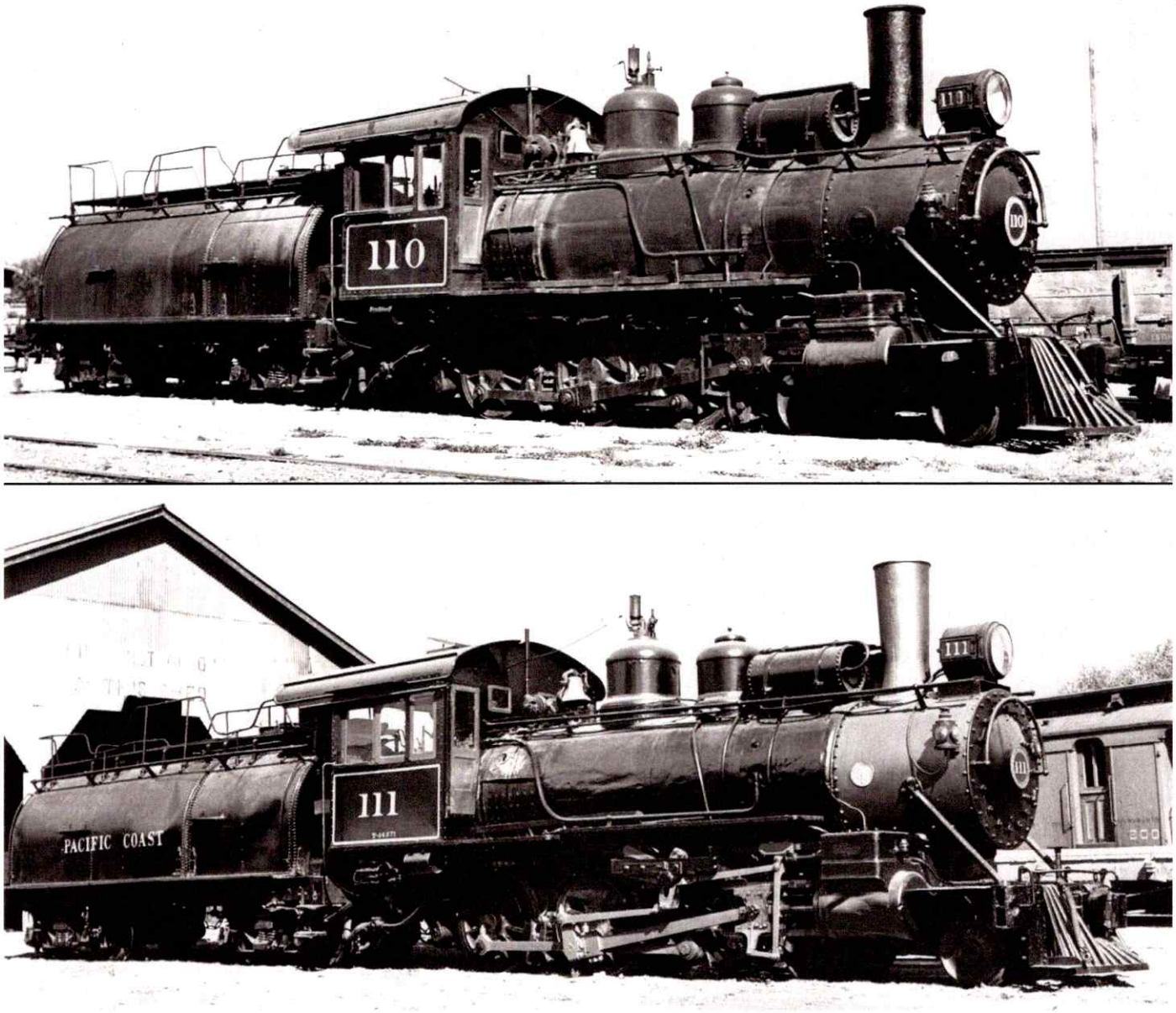


Photo 1: Concurrent applications of both Stephenson and Walschaert valve gear: *top*: PCRy No. 110 (ex NCO No. 10) with Stephenson valve gear built by Baldwin in 1910; *bottom*: PCRy No. 111 (ex NCO No. 11) with Walschaert valve gear, built by Baldwin in 1911. Note: Southern Pacific Narrow Gauge also bought similar engines from NCO, again with a mix of Stephenson and Walschaert valve gear (examples are SPNG No. 9 & 18.)

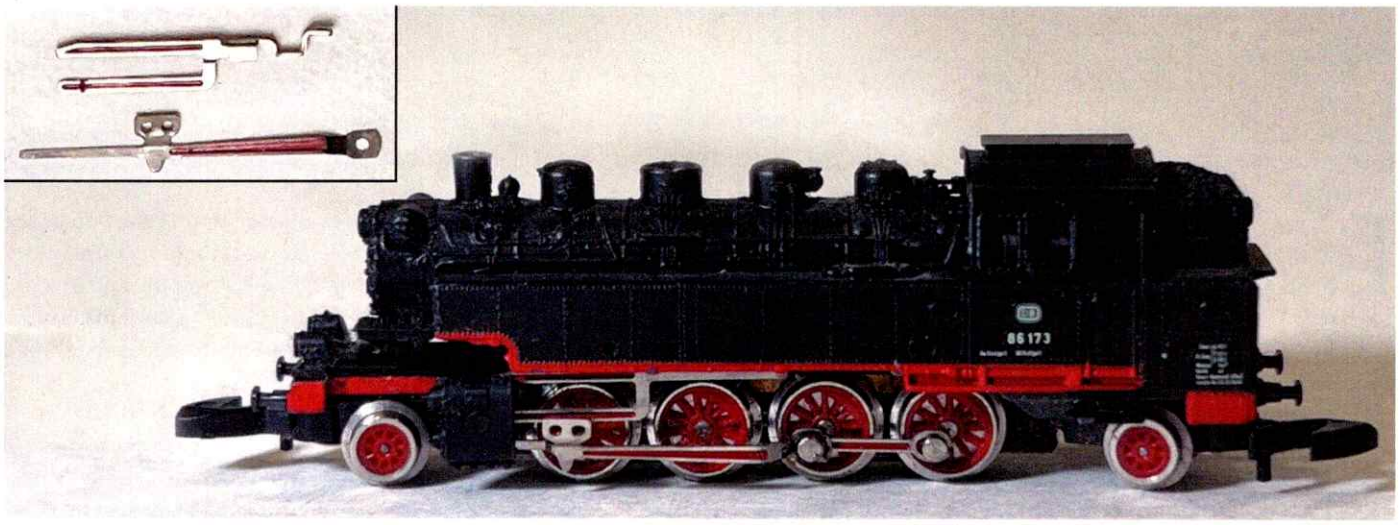


Photo 2: Typical Märklin Mini-Club Z-scale steam engine; *inset*: the combined main rod, crosshead, and piston rod and the "crosshead guide."

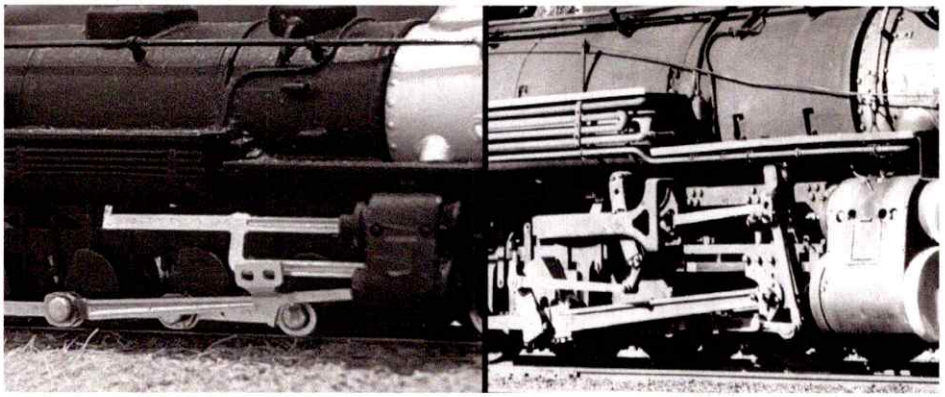
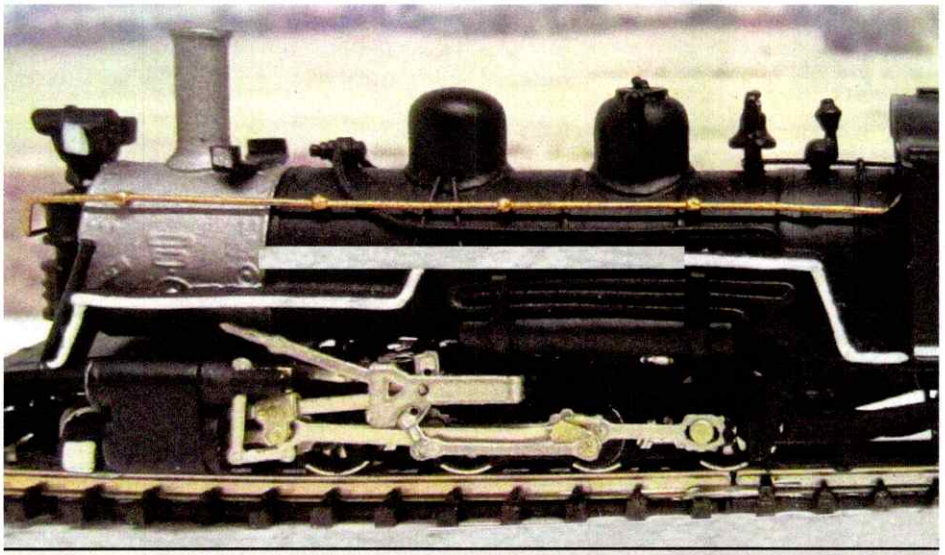


Photo 3: *Left*: LOK-14 as supplied with typical Märklin simplified valve gear; *right*: prototype 461 valve gear.



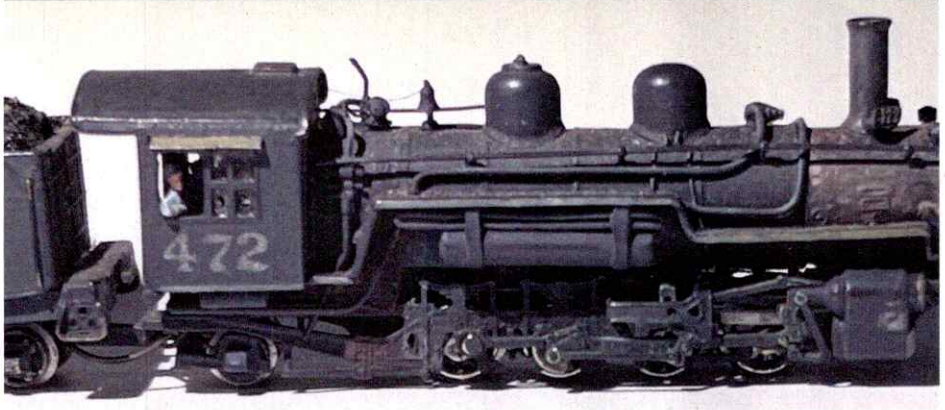


Photo 4: *Top*: contemporary to the Märklin Mini-Club Z-scale steam loco in *Photo 2*, Westmodel produced R-T-R and kits for K-series locos with simulated valve gear; *middle*: RLW also produced a kit with etched simulated valve gear; *bottom*: and modelers scratch-built "operating" valve gear.

front or rear side of the piston through openings in the side of the cylinder. This flow is regulated by a valve located above or to the side of the steam cylinder. (I won't go into the different slide- and piston-valves used for this purpose.) The position of this valve in relation to the steam piston determined whether the locomotive moved forward or reverse, in addition to how much steam was delivered (speed) and the timing of the delivery. The method of controlling this relationship between the piston and valve evolved through several designs, and perhaps the best summary of this history can be found on the UK website Valves, Valve Gear etc | Advanced Steam Traction (*advanced-steam.org*).

In many 19th and early 20th century locomotives, this relationship was governed by a valve gear designed by Robert Stephenson's employees in 1842. Stephenson's Valve Gear (and the Gooch and Allan derivatives) uses an arrangement of rods operating off cams on the axle of the locomotive between the frame, with a shaft running across the frame to a lever on the outside of the frame, which operated a rod connected to the valves (***Figure 1***). You can view animation of a Stephenson valve gear at *www.youtube.com/watch?v+JGaL-D3Nmf8* . In 1844, a Belgian engineer named Egide Walschaerts invented a valve gear with all the levers and rods outside the frame. ***Figure 2*** – generously provided by its creator Robert Booty – shows the typical arrangement and names of these rods and levers. (His description can be found at *trumpetb.net/loco/wdiagram.html* and animation can be found at *youtu.be/YuPtJ3kkd0w*) This became a popular valve gear arrangement used until the end of the steam era, but both of these valve gear designs were used by locomotive builders in the USA, sometimes concurrently.

There were other valve gear designs, but these two appear to account for the majority of piston steam engines. The final arrangement of levers and the rigid supports extending from the locomotive frame varied from builder to builder and even between different locomotive designs by the same builder, but the operational concept was pretty much the same for a particular form of valve gear. Also, builders sometimes built the same general configuration of locomotive with either one or the other valve gear, as in the example of the Baldwin "Slim Princess" ten-wheelers acquired from NCO by both the Pacific Coast Railway and the Southern Pacific Narrow Gauge in the 1920s (***Photo 1***).

All the Märklin steam locomotives, up until recent re-issues, have featured a simplified metal stamping combining the main rod, crosshead, and piston rod in one piece (***Photo 2***). Since modelers began converting these locos to Nn3 beginning in 1972, most conversions have retained this simple "toy train" main rod (an effective, if somewhat crude, simulation of a locomotive with Stephenson valve gear), although a few

modelers scratch-built their own more prototypical linkage. And some of the available Nn3 kits included etchings for more prototypical set-ups as well.

The K-27 locomotives built by Baldwin used the Walschaert valve gear, which will be the subject of this article. A comparison reveals the striking difference (***Photo 3***). The Lok 14 K-27 in this series also retained the Märklin simple main rod, even though the contemporary K-28 model locomotive offering by Aspenmodel (manufactured by Westmodel, also of Germany) featured an assembled more complex and more prototypical valve gear. At the same time, Republic Locomotive Work's kit for the K-37 included etched brass components, enabling a modeler to simulate a more complete valve gear. The visual difference between the Märklin and these other examples is striking (***Photo 4***). I decided to add simulated working valve gear to my Lok-14 to compliment the highly detailed superstructure.

I looked at several kit-bashing options using available and nicely detailed Walschaert valve gear on Bachmann standard-gauge N scale steam locomotives, as well as Z scale valve gear on Z scale locomotives by American Z Lines, Tenshodo and Märklin (***Photo 5***), but decided I did not want to chop up any of these. In the past, Aspenmodel/Westmodel offered various parts as used on their models for sale separately, and I had acquired an etching set for the rods and valve gear for their K-36 model (***Photo 6***). I decided to use this as a starting point for adding valve gear to my Lok 14.

The Westmodel K-36 nickel-silver etched valve gear was designed to fit their proprietary chassis as used on their K-36 kit and R-T-R locomotive. The distance between the steam cylinder and the second driven axle on this Westmodel chassis is different than that on the Märklin chassis used by Lok-14, meaning the main rod needed to be shortened by 3mm. After cutting, the two parts were overlapped and soldered together. I then filed the crosshead guide top and bottom to thin them down a bit to better fit the smaller K-27 cylinder block, and drilled holes in the back of the block to accept the ends of the

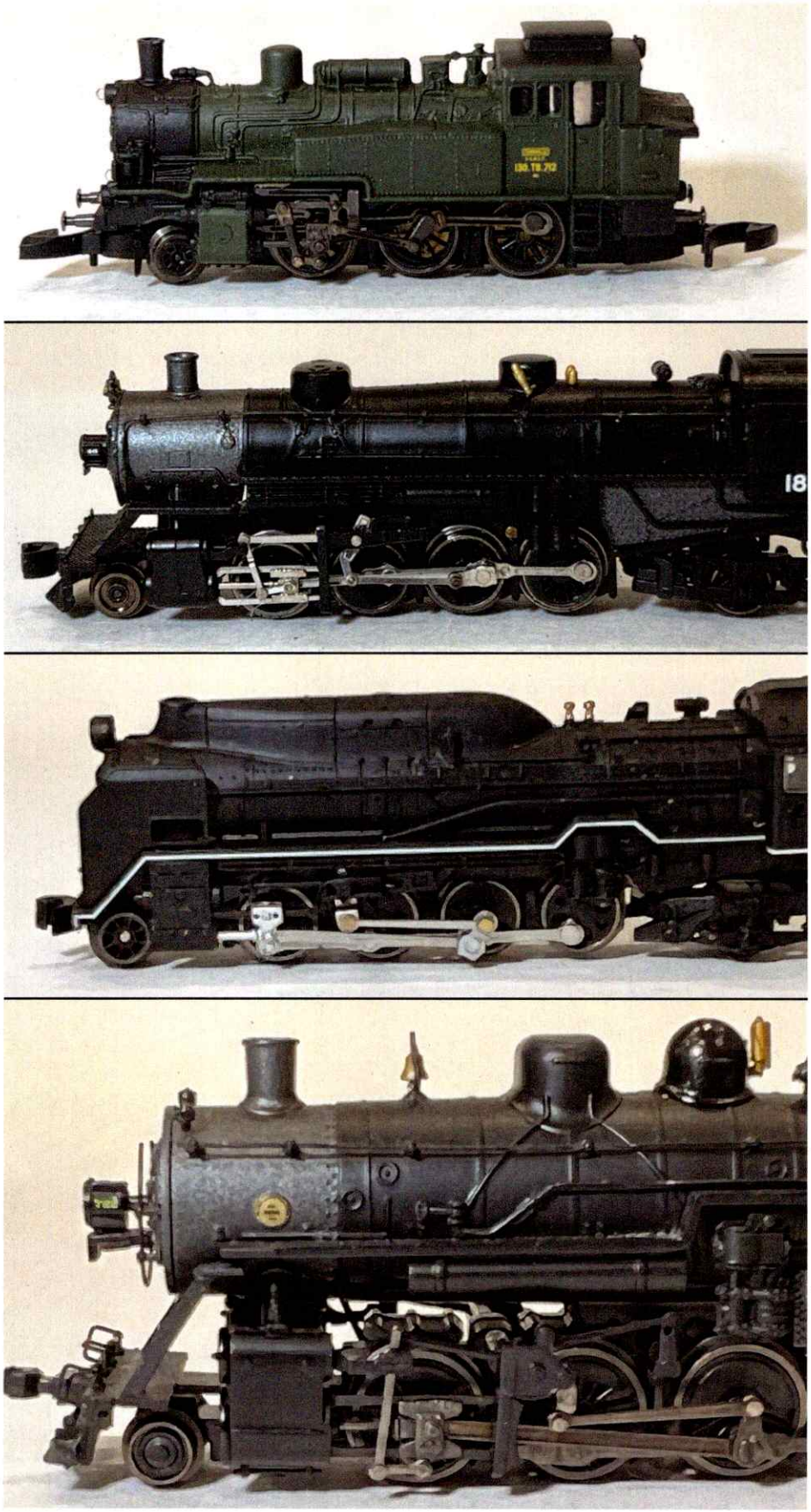


Photo 5: Potential valve gear "donors," *from top to bottom*: typical current Märklin steam engine with metal Walschaert valve gear; American Z Lines with metal Walschaert valve gear; Bachmann N scale standard gauge with metal Walschaert valve gear; Tenshodo Japanese prototype Z-scale with what may be a simplified rendition of Walschaert valve gear.

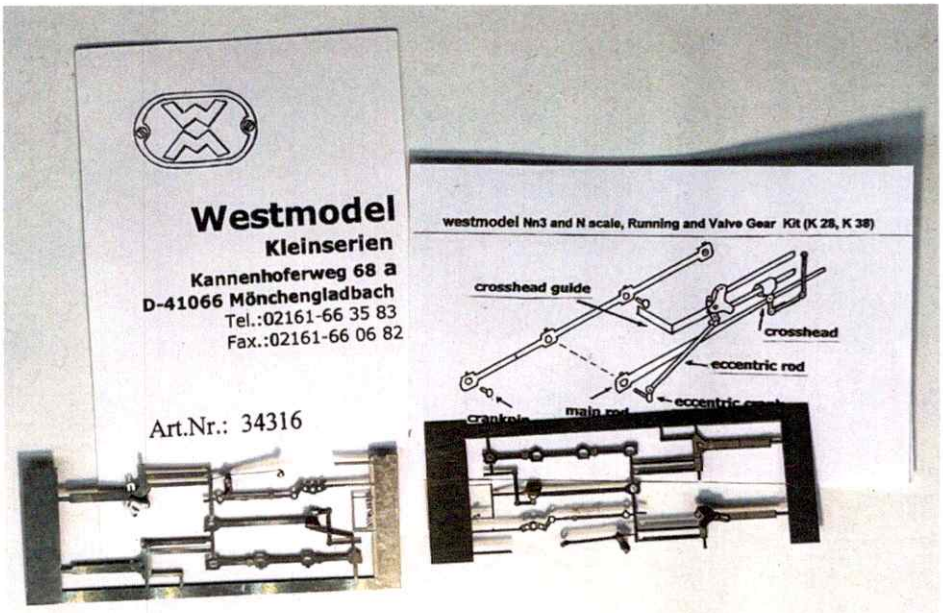


Photo 6: Westmodel etched nickel-silver valve gear and main/side rod kit for the Westmodel/ Aspenmodel K-28.

guides, as well as increasing the depth of the valve rod hole, as this rod would be the main structural support for my newly fabricated valve gear. I soldered a bit of .015" (.4mm) NS wire into the hanger to simulate this valve rod. At this point, I fitted the main rod and the crosshead to the chassis to check the main rod length and made some adjustments to the lengths of the crosshead guides and valve rod to get it correct.

The main rod is etched in one piece with the union link. To more accurately simulate the arrangement and movement of the levers on the K-27, I cut this apart and fabricated a new lever from some of the extra parts on the Westmodel etch fret. I then drilled the union link and the combination lever, looped the bracket I had formed in the top of the combination lever over the valve rod, then pinned the bottom of the lever to the link (***Photo 7***). With all these adjustments made, I inserted the valve rod, top and bottom crosshead guides, and piston rod in the cylinder block and glued them in place, taking care not to get glue in the piston hole (***Photo 8***). I removed the motor from the chassis so I could roll the chassis back and forth to check for binds in the running gear and built up the rest of each side separately (side rods, main rod, eccentric and eccentric rod) and roll-tested as I went (***Photo 9***). After the chassis rolled smoothly with both sides fitted, I re-installed the motor and test-ran the loco again (***Photo 10***).

HEADLIGHT

Prior to the DCC installation, while waiting for the decoder and stay-alive unit to arrive from Streamline Back Shop (*www.sbs4dcc.com*), I drilled out the headlight and smokebox and installed a 0402 warm-white pre-wired SMLED in the headlight (***Photo 11***). I prefer to use the ones pre-wired with muti-strand wire leads insulated with a translucent silicone insulation from Evemodel-USA (evemodel_usa | eBay Stores) rather than those with lacquer-insulated solid copper "magnet wire" leads, as the later can break when flexed or pinched. (Similar products can be found on Amazon with color-coded wires.) These wires are thicker than the lacquered magnet wire, and require a bit more planning for their routing, but offer insurance against having to re-do the installation if one of the magnet wires break. The LED must be coated with a layer of CA adhesive before installing in the brass headlight to assure it does not short out. I also painted the LED with a liberal coating of Vallejo Aged White to cut down the brightness a bit. The LED requires a resistor, which I will install in the tender with the decoder, but I was able to test the installation with a pair of AA batteries after fitting the LED to the headlight housing. A final touch will be installing a clear lens punched from clear acetate, but that is left until after the weathering.

DCC and SOUND

On the recommendation of Bryan at Streamlined Backshop (*www.sbs4dcc.com*), I chose an ESU 58923 LokSound 5 Nano

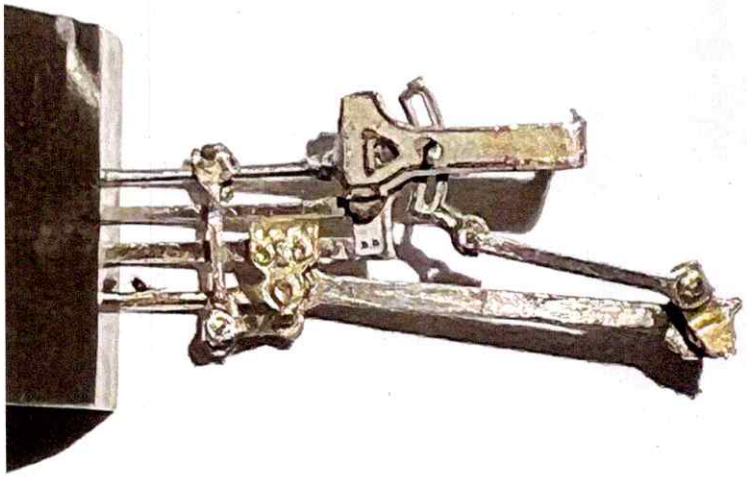


Photo 7: The assembled valve gear for the fireman's side of the locomotive.

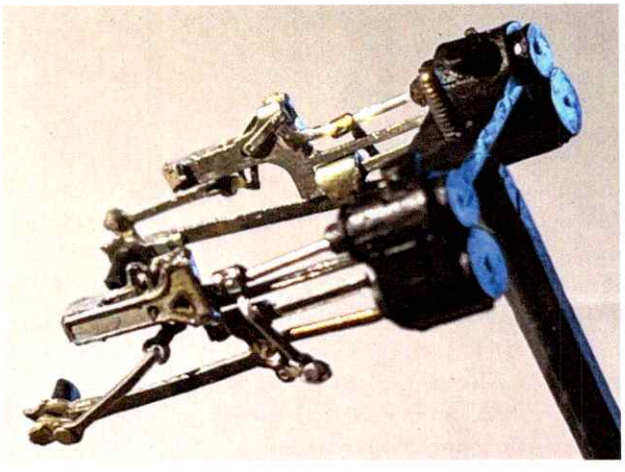


Photo 8: Both fireman's and engineer's side valve gear attached to the cylinders.

decoder (which he pre-loaded with K-27 sound file S0586) and an ESU 54671 Power Pack Mini (***Photo 12***). Installing the decoder and stay alive in the K-27 tender is a tough job. The Power Pack Mini (a "stay-alive" in current popular nomenclature) comes with a not-so-mini 2.7V 1F capacitor, which I could not accommodate in the tender. Joe DuVivier of the on-line Nn3 forum *groups.io/g/Nn3* recommended a 2.7V/1F replacement available from DigiKey (part no. 493-4330-ND) that is just a little over half the size of the ESU capacitor (***Photo 13***), so I replaced the ESU capacitor with one of these on flexible wiring, to allow better arrangement of the parts in the tender shell. The connection of Power Pack MIni unit to the ESU 58923 LokSound 5 Nano is a tricky operation, which I will not go into here; Bryan details this procedure (including setting CVs to enable the Power Pack) in his tutorial at: *www.sbs4dcc.com/tutorialstipstricks/esuloksound5keepalive.html*

ESU Power Pack by Tim Horton

According to the ESU website, the Power Pack with a 2.7V 1F capacitor should provide power for about 2 seconds after loss of power through the rails. At a scale 30MPH, this would equate to about 6 inches of travel. Note that while there have been several articles in the model press recently on using arrays of small rectangular 16V 220uF Tanatalum capacitors, according to an electronics engineer I know, it would require about 4,000 of these to equal the capacitance of the 2.7V 1F capacitor in the ESU Power Pack, although as others have shown an array of the 220uF Tanatalum capacitors seems to provide continuity for momentary losses of rail power.

The Lok-14 tender is a cleanly soldered assembly of etched brass sheet. It is held to the cast-brass floor with two small screws into a plate running transversely across the tender shell (***Photo 14***). For access to install a decoder, it is necessary to carefully remove much of this plate. An oval 10mm x 18mm 8 ohm Digitrax speaker requires only minimum trimming of the ends to make it a snug press-fit into the brass coal bunker, but to settle

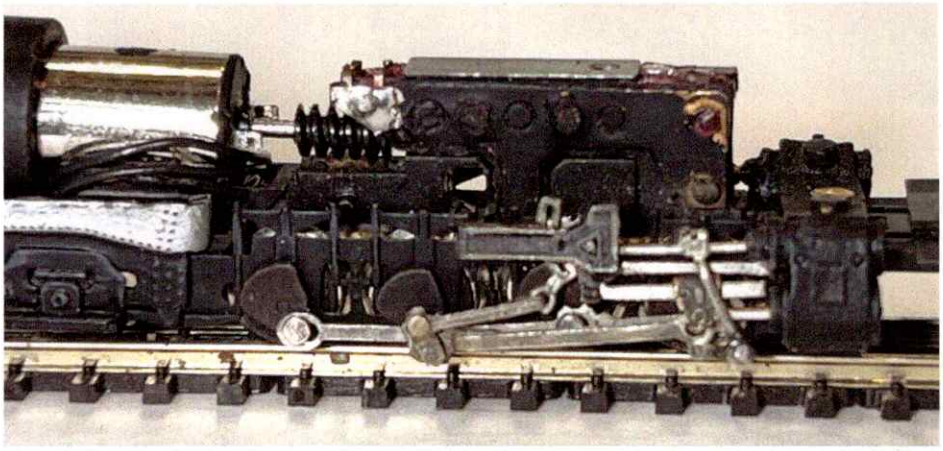


Photo 9: The Westmodel main rod and valve gear fitted to the engineer-side of the LOK-14 K-27; a temporary screw holds the cylinder block in place for fitting and roll testing the valve gear.

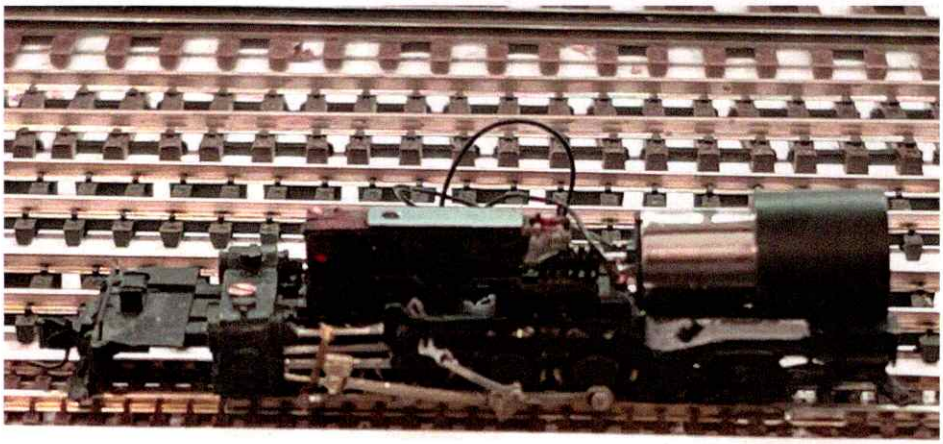


Photo 10: Test running loco chassis with completed valve gear on author's multi-gauge test track.

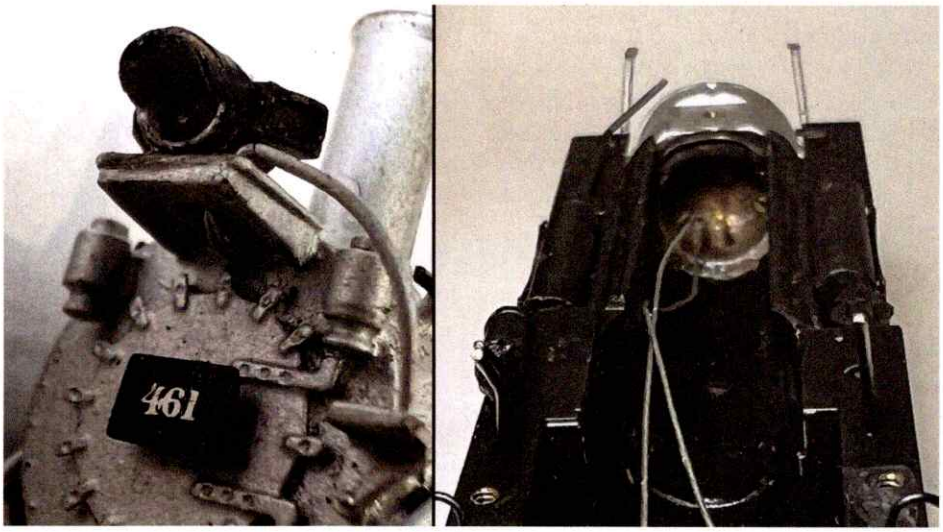


Photo 11: SMLED headlight installation.

it down to below the top edges of the bunker, it is necessary to drill a 15/32" diameter hole in the top deck of the tender to allow the circular magnet to protrude through (***Photo 15***).

To improve electrical pick-up, I decided to add pick-up to the tender trucks. The Lok-14 trucks are brass castings, and all the wheels are insulated from the axles. I decided to insulate the brass trucks from the tender floor, and use Fox Valley metal wheelsets, with pick-up from one rail on the front truck and from the opposite rail on the rear truck. After drilling and soldering a silicone-insulated 36AWG wire to each truck, I

Photo 12: ESU Lok Sound Nano decoder and Power Pack Mini "stay-alive" as well as 10×18 speaker from author's "stash."

drilled out the hole in the center of each truck bolster and pressed in bushings made from MTL Delrin truck mounting pins. I also punched out clear acetate insulating washers to replace the metal washers between the truck and tender bolsters (***Photo 16***). I drilled and filed the cast-brass truck floor for the wires between loco and tender, as well as the wires to the tender trucks (***Photo 17***).

To couple the decoder to the locomotive motor and headlight, I chose six-pin TCS pre-wired "micro" plugs and sockets. The decoder leads were trimmed back and soldered to the leads on the TCS socket section, at the same time incorporating a 240-ohm resistor in the white headlight lead. It took a bit of trial-and-error arranging and re-arranging the components in the tender shell before they all fit far enough up to allow the shell to be snuggly fitted to the floor (***Photo 18***).

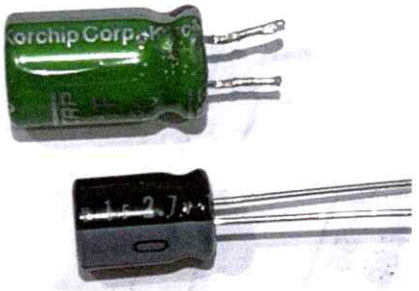


Photo 13: *Top*: 2.7V/1F capacitor as provided with ESU "stay-alive; *bottom*: replacement 2.7V/1F is physically much smaller.

The wires on the TCS plug section were routed through guides I had previously installed on the locomotive frame cross member under the motor and flywheel to both keep wiring from rubbing on the flywheel and to route the wiring to simulate loco-tender hose connections and soldered to their appropriate landing spots on the motor and chassis (***Photo 19***). With connections complete, the loco was test run (***Photo 20***).

With the installation completed and tested, I formed a small piece of fine brass screen into a rounded shape using a ball peen hammer, chemically blackened it with Brichwood-Casey Brass Black, cut to fit the top opening of the coal bunker, then applied a thin layer of coal "fines" I had collected at the rail yard in Ely, Nevada several years

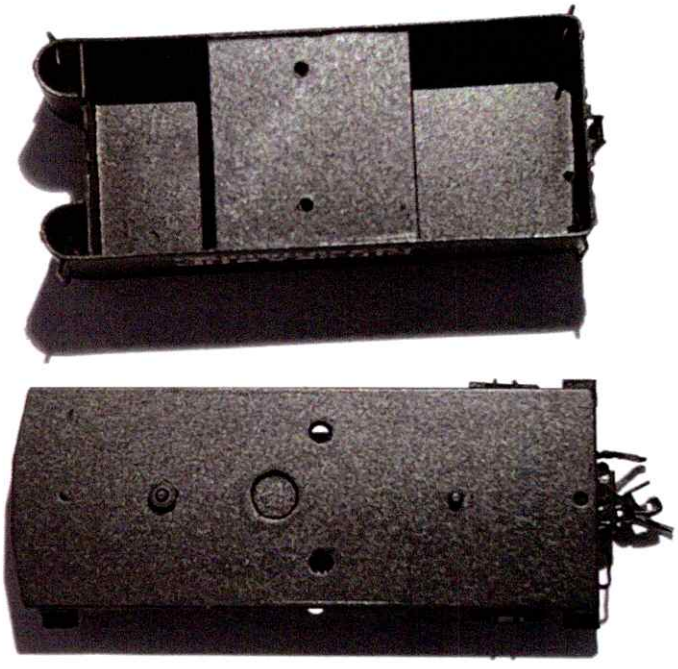


Photo 14: Unmodified LOK-14 tender shell with brass cross-brace which is drilled and tapped for screws attaching it to cast brass tender floor.

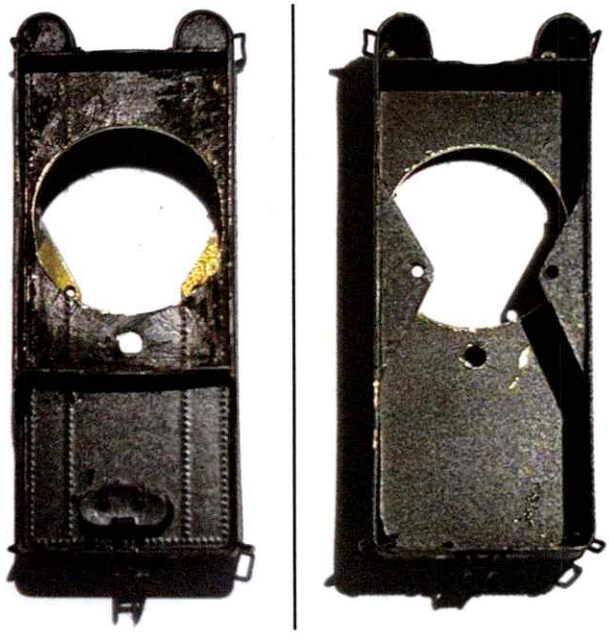


Photo 15: Tender shell modifications: *left*: top shows hole drilled through deck for speaker magnet (I cut out some more as I tried different speakers); *right*: plate running across tender shell has been cut back to allow decoder install.

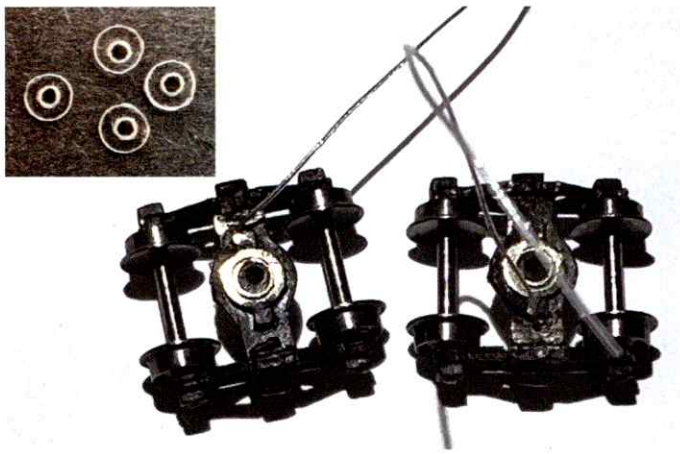


Photo 16: Tender trucks with Fox Valley wheels, electrical pick-up wires, and plastic insulating bushings; *inset*: plastic insulating washers.

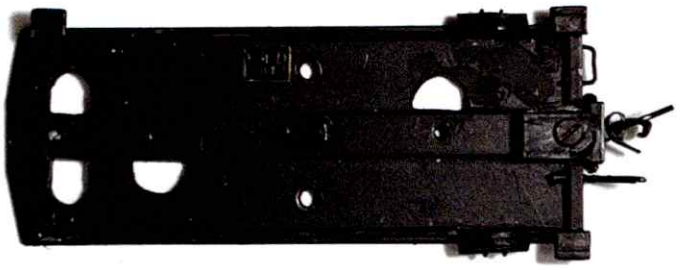


Photo 17: Cast-brass tender floor with cutouts for tender truck pick-up wires and wires to/from locomotive. (Note etched brass plate with model S/N).

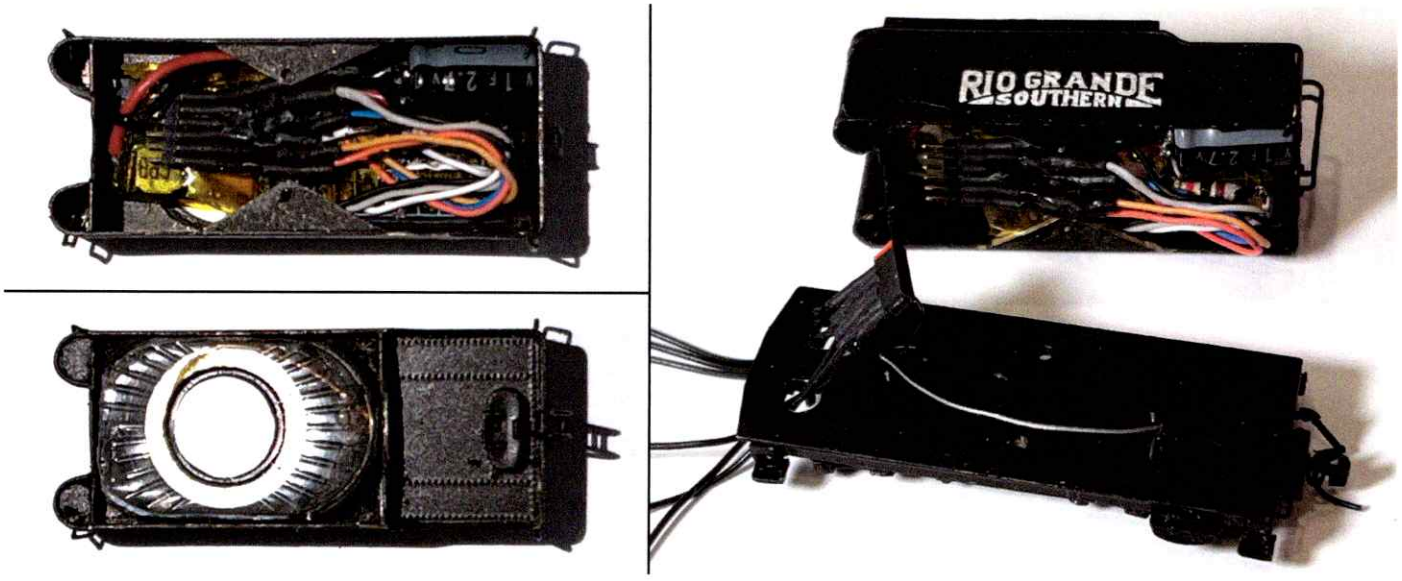


Photo 18: *Top left*: the whole decoder mess squished up into the brass tender shell; *bottom Left*: speaker fitted to coal bunker; *right*: TCS six-pin connector connects tender shell with all the electronics to the tender floor and loco.

ago. This created a "semi-transparent" screen (***Photo 20***) over the speaker. This is a light press fit, so I can remove it if required.

WEATHERING

The Lok-14 K-27s are beautifully factory painted and lettered, but the prototype locos had a hard life. (See ***Photo 1*** in the Sep/Oct issue of *N-Scale Magazine*.) I wanted to add light weathering representing a maintained locomotive in regular use. I used a combination of dry-brush painting, Bragdon chalks and a small amount of Rustall (on the smokebox and exposed portions of the firebox) to accomplish this (***Photo 21***). Marshall Thomson had already added a Labelle cab crew to the locomotive, and I added a thin black wash over these to bring out more detail. The finished locomotive will be a prized addition to my collection, and I believe Marshall would approve of my "gilding of the lily"...

FINALLY

... please e-mail me at thomasknapp@att.net with your comments, questions, and ideas for content. I would especially like to see the modeling of other Nn3ers out there that I could share with the readers of this magazine. Each reader out there has their own unique knowledge or skill, which can be shared with the rest of us, so put pen to paper (or fingers to keyboard) and share with us. Also, manufacturers who have narrow gauge and shortline products and other products, which help model the 19th, and early 20th scene, please let me know.

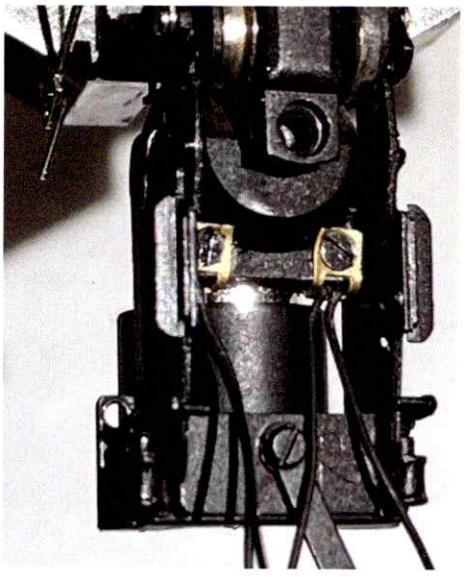


Photo 19: Wire guides attached to frame cross members keep wiring from fouling the flywheel and route the wiring between tender and loco simulating hose connections.

Photo 20: *Left*: forming coal load speaker screen; *top right*: screen friction-fits over speaker; *bottom right*: with Ely coal ciders applies; *inset*: "transparency" is shown by flashlight under coal load.

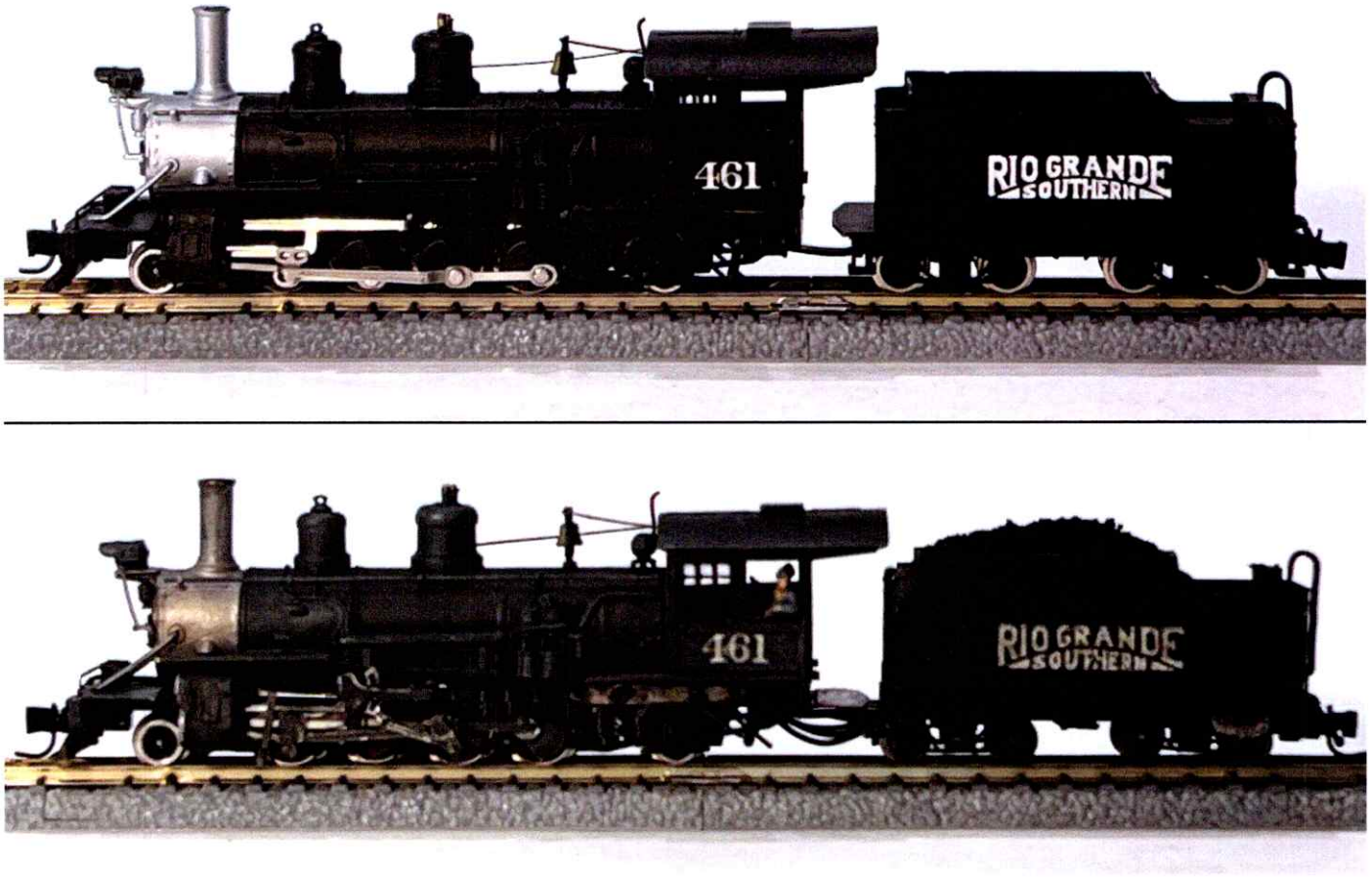


Photo 21: Before (*top*) and after (*bottom*) light weathering with airbrush and dry-brush paint, Rustall and Bragdon chalks.

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1. Title of Publication: N-Scale
2. Date of Filing: September 2022
3. Frequency of Issue: Bi-Monthly
4. Mailing address of known office of publication:
   5811 75th Avenue NE • Marysville, WA 98270
5. Location of Headquarters or General Business offices of the publisher:
   5811 75th Avenue NE • Marysville, WA 98270
6. Publisher: Pamela J. Clapp
7. Owner: Pamela J. Clapp
8. Known bondholders, mortgages and other security holders owning or holding one percent or more of total amount of bonds, mortgages or other securities: None
9. For completion of non-profit organization
10. Extent and nature of circulation:

	Average Number copies of each issue in previous 12 Months:	Single Isssue nearest to filing date:
A. Total Copies Printed:	5010.0	4940.0
B. Paid Circulation:		
1. Paid Mail Subs:	2750	2642
2. Sales Thru Dealers:	1734	1648
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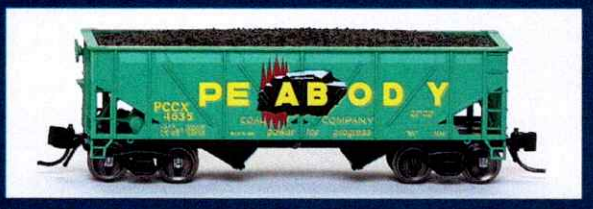

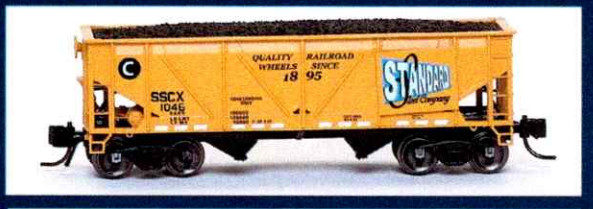

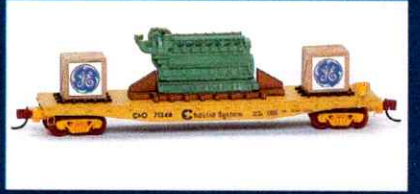

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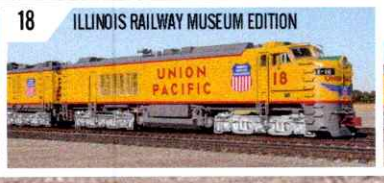

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